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W. AVERELL HARRIMAN, *Secretary*
WEATHER BUREAU - - F. W. Reichelderfer, *Chief*

MONTHLY WEATHER REVIEW

JUNE 1947

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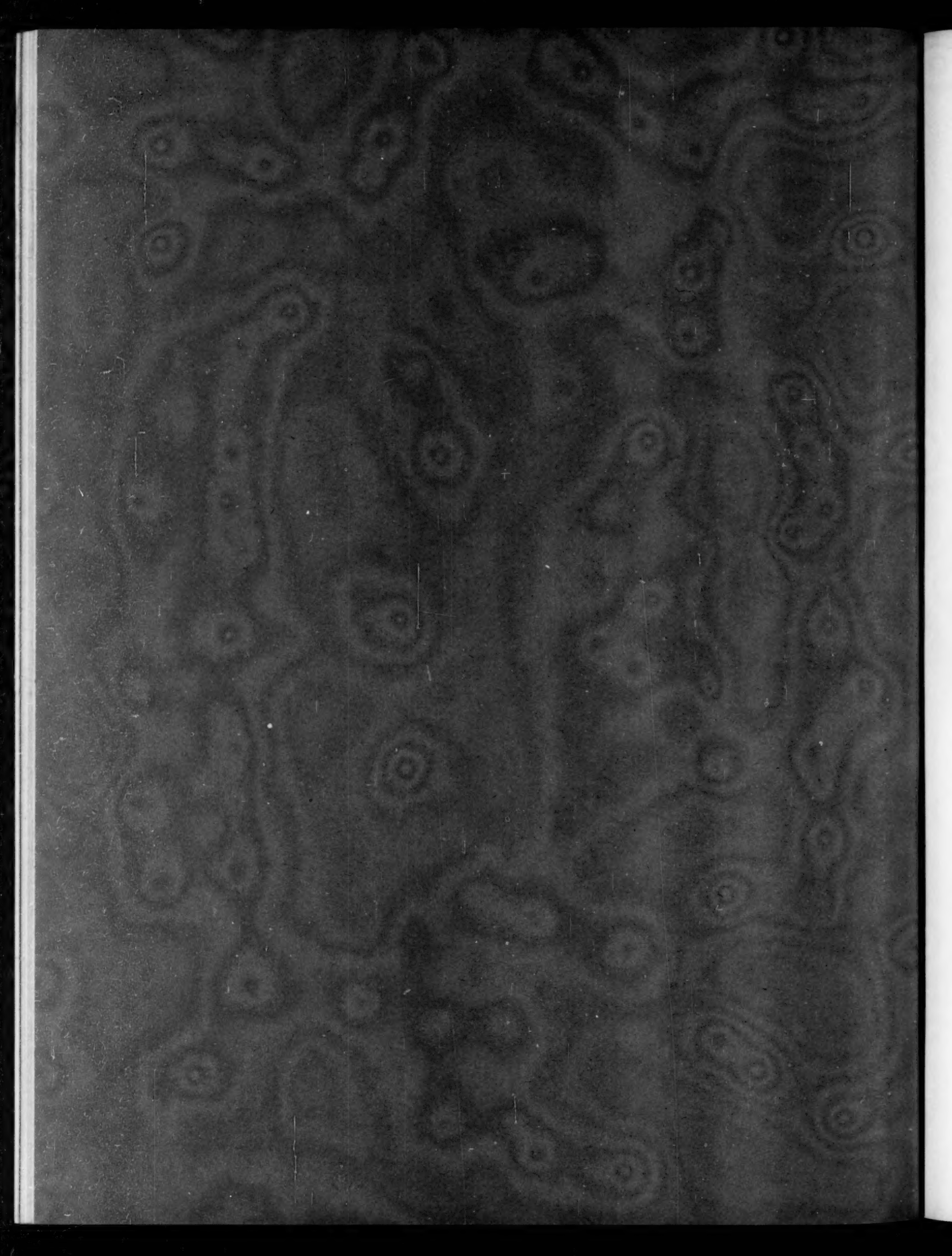

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MONTHLY WEATHER REVIEW

Acting Editor, Robert N. Culnan

VOL. 75, No. 6
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JUNE 1947

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METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR JUNE 1947

AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and charts, see REVIEW, January 1946, p. 61]

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during June 1947*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,004.4 mb.)				Albuquerque, N. Mex. (833.6 mb.)				Apalachicola, Fla. (1,014.8 mb.)				Atlanta, Ga. (981.5 mb.)				Auburn, Calif. (953.9 mb.)				Big Spring, Tex. (921.3 mb.)				Bismarck, N. Dak. (950.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	29	86	15.6	83	30	1,620	25.1	21	30	5	25.0	84	30	300	22.6	72	30	501	22.1	42	29	774	27.5	45	30	505	17.1	71
1,000	29	123	(*)	----	30	−11	(*)	----	30	135	24.8	82	30	135	(*)	----	30	87	(*)	----	29	40	(*)	--	30	65	(*)	----
950	29	559	15.0	72	30	458	(*)	----	30	589	22.5	76	30	587	22.6	68	30	537	21.6	43	29	500	(*)	----	30	510	(*)	----
900	29	1,016	12.4	71	30	944	(*)	----	30	1,054	19.7	73	30	1,053	19.4	72	30	1,003	19.1	43	29	981	26.6	45	30	967	14.7	65
850	29	1,494	9.9	73	30	1,448	(*)	----	30	1,544	16.8	71	30	1,543	16.0	73	30	1,491	15.3	47	29	1,483	23.1	46	30	1,448	11.6	68
800	29	1,996	7.1	71	30	1,979	22.8	22	30	2,059	13.8	67	30	2,057	13.4	60	30	2,001	11.4	49	29	2,009	20.3	43	30	1,953	8.3	69
750	28	2,529	4.2	64	30	2,536	18.3	25	30	2,604	10.8	61	30	2,604	10.4	56	30	2,538	7.6	46	29	2,564	16.4	42	30	2,487	5.2	70
700	28	3,084	1.1	63	30	3,121	13.5	29	30	3,174	7.5	58	30	3,170	7.3	53	30	3,101	3.7	44	29	3,146	12.1	41	30	3,044	1.7	67
650	28	3,678	−2.0	58	30	3,741	8.1	35	30	3,786	4.4	55	30	3,782	3.8	49	30	3,701	0.0	38	29	3,760	7.3	40	30	3,640	−2.9	64
600	28	4,309	−5.6	56	30	4,392	2.4	45	29	4,429	0.8	54	30	4,422	−0.1	47	30	4,336	−2.8	----	28	4,413	1.9	43	30	4,271	−5.2	59
550	28	4,989	−9.6	48	28	5,084	−3.4	54	29	5,123	−3.4	51	30	5,113	−4.2	45	30	5,020	−6.7	----	27	5,109	−2.4	37	30	4,950	−9.0	58
500	28	5,716	−14.0	48	28	5,832	−8.8	54	29	5,871	−8.2	49	30	5,858	−9.0	40	30	5,759	−11.3	----	25	5,861	−7.4	----	30	5,681	−13.7	56
450	28	6,511	−19.4	47	28	6,644	−14.1	46	29	6,690	−13.3	45	30	6,674	−14.1	----	30	6,563	−16.9	----	23	6,683	−12.6	----	29	6,483	−18.9	52
400	28	7,354	−25.5	----	28	7,524	−19.8	----	29	7,568	−19.4	46	30	7,550	−20.0	----	29	7,436	−23.1	----	23	7,567	−18.2	----	29	7,342	−24.9	----
350	28	8,327	−32.7	----	28	8,501	−26.9	----	29	8,547	−26.4	----	30	8,527	−27.2	----	29	8,399	−30.8	----	22	8,554	−25.1	----	29	8,299	−32.0	----
300	28	9,395	−40.5	----	27	9,600	−35.1	----	29	9,641	−34.9	----	30	9,618	−35.6	----	28	9,476	−39.5	----	21	9,653	−33.5	----	28	9,368	−39.9	----
250	27	10,615	−49.0	----	27	10,845	−44.6	----	29	10,887	−44.9	----	30	10,860	−45.5	----	28	10,698	−49.0	----	19	10,910	−43.2	----	27	10,590	−48.9	----
200	25	12,071	−55.6	----	26	12,310	−54.3	----	29	12,340	−56.5	----	29	12,312	−56.7	----	26	12,141	−57.2	----	15	12,379	−55.9	----	14	12,044	−56.3	----
175	22	12,909	−57.3	----	17	13,159	−58.5	----	27	13,179	−61.9	----	28	13,145	−62.1	----	21	12,991	−60.1	----	11	13,214	−59.7	----	7	12,901	−55.6	----
150	18	13,881	−59.0	----	----	----	----	----	23	14,126	−67.3	----	20	14,088	−66.5	----	14	13,960	−62.2	----	6	14,157	−64.2	----	----	----	----	----
125	13	15,019	−58.8	----	----	----	----	----	13	15,218	−70.1	----	11	15,174	−67.9	----	10	15,060	−63.0	----	----	----	----	----	----	----	----	----
100	8	16,365	−57.4	----	----	----	----	----	5	16,524	−71.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Boise, Idaho (912.5 mb.)				Brownsville, Tex. (1,009.3 mb.)				Buffalo, N. Y. (988.5 mb.)				Caribou, Maine (991.9 mb.)				Charleston, S. C. (1,014.3 mb.)				Ciudad Victoria, Mexico (969.4 mb.)				Columbia, Mo. (982.8 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	868	18.8	47	30	6	27.5	82	27	221	15.9	81	30	191	12.7	75	30	13	22.1	90	27	335	30.6	54	30	239	22.2	80
1,000	30	72	(*)	----	30	88	26.8	83	27	122	(*)	----	30	121	(*)	----	30	136	22.6	85	27	55	(*)	----	30	88	(*)	----
950	30	525	(*)	----	30	549	23.4	84	27	564	16.2	63	30	555	12.7	65	30	588	21.3	78	27	516	28.7	56	30	538	21.6	75
900	30	986	18.0	44	30	1,014	21.8	61	27	1,018	13.6	64	30	1,006	10.7	66	30	1,050	18.1	70	27	995	24.5	60	30	1,003	19.2	72
850	30	1,472	14.2	46	30	1,509	19.9	48	27	1,497	10.5	65	30	1,480	7.8	64	30	1,538	15.0	71	27	1,493	20.5	65	30	1,494	16.6	72
800	30	1,980	10.0	52	30	2,029	17.2	39	27	2,000	7.5	60	30	1,978	5.0	71	30	2,050	12.3	63	27	2,014	16.6	69	30	2,009	14.0	60
750	30	2,514	5.7	57	30	2,582	14.6	32	27	2,539	4.4	56	30	2,507	2.4	68	30	2,594	9.6	54	27	2,566	12.9	66	30	2,556	11.0	56
700	30	3,072	1.3	61	30	3,157	11.5	28	27	3,088	1.5	50	30	3,057	−0.3	66	30	3,159	6.3	53	27	3,140	10.7	43	30	3,124	8.1	51
650	30	3,668	−2.3	57	30	3,776	8.0	----	27	3,687	−1.8	44	30	3,650	−3.2	61	30	3,765	2.7	52	27	3,757	6.6	41	30	3,733	4.8	47
600	30	4,296	−6.3	55	30	4,427	4.0	----	27	4,314	−5.4	46	30	4,276	−7.0	59	29	4,407	−1.0	43	26	4,406	2.5	----	30	4,380	0.1	48
550	30	4,969	−11.1	54	30	5,132	−0.3	----	27	4,997	−9.1	----	30	4,950	−10.8	50	29	5,096	−5.0	40	26	5,105	−1.8	----	30	5,069	−4.3	49
500	30	5,695	−15.8	50	30	5,884	−5.2	----	26	5,723	−13.8	----	30	5,676	−15.6	53	29	5,839	−9.6	----	26	5,857	−6.3	----	30	5,817	−8.7	41
450	30	6,484	−21.3	----	30	6,711	−10.8	----	26	6,527	−18.8	----	30	6,467	−20.8	----	28	6,658	−14.9	----	25	6,680	−11.7	----	30	6,634	−14.0	----
400	30	7,340	−27.3	----	29	7,597	−17.1	----	26	7,384	−24.8	----	30	7,324	−26.8	----	28	7,530	−20.8	----	23	7,568	−17.7	----	30	7,510	−20.4	----
350	30	8,287	−34.6	----	29	8,584	−24.2	----	26	8,341	−31.9	----	30	8,277	−33.4	----	28	8,503	−27.7	----	23	8,553	−24.6	----	30	8,484	−27.8	----
300	28	9,355	−41.8	----	29	9,689	−32.4	----	25	9,420	−39.5	----	30	9,339	−41.1	----	28	9,592	−36.3	----	23	9,558	−32.8	----	30	9,573	−35.8	----
250	28	10,567	−49.8	----	29	10,948	−42.1	----	25	10,644	−47.8	----	30	10,556	−48.9	----	25	10,828	−45.8	----	23	10,917	−42.9	----	26	10,811	−44.8	----
200	27	12,003	−55.2	----	29	12,421	−53.4	----	23	12,106	−55.1	----	28	12,000	−53.9	----	24	12,282	−56.2	----	21	12,383	−54.7	----	22	12,282	−54.6	----
175	25	12,864	−55.0	----	24	13,270	−58.8	----	19	12,966	−56.3	----	23	12,878	−54.4	----	20	13,112	−61.4	----	16	13,226	−61.0	----	17	13,131	−59.1	----
150	17	13,861	−55.1	----	16	14,236	−64.6	----	18	13,948	−58.1	----	15	13,855	−52.5	----	11	14,072	−65.6	----	----	----	----	----	9	14,107	−63.2	----
125	6	15,010	−55.2	----	----	----	----	----	11	15,064	−57.0	----	11	15,034	−54.3	----	6	15,175	−68.0	----	----	----	----	----	----	----	----	----
100	----	----	----	----	----	----	----	----	8	16,493	−58.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

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TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during June 1947*—Continued

Standard pressure surface (mb.)	Dodge City, Kans. (919.3 mb.)				El Paso, Tex. (877.3 mb.)				Ely, Nev. (806.5 mb.)				Fort Worth, Tex. (985.8 mb.)				Glasgow, Mont. (935.0 mb.)				Grand Junction, Colo. (848.6 mb.)				Great Falls, Mont. (884.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	787	21.0	69	30	1,195	28.3	21	30	1,908	16.1	42	30	211	27.3	59	30	648	17.0	60	30	1,474	21.1	36	30	1,128	15.0	56
1,000	30	46	(*)	----	30	15	(*)	----	30	34	(*)	----	30	82	(*)	----	30	67	(*)	----	30	26	(*)	----	30	69	(*)	----
950	30	501	(*)	----	30	487	(*)	----	30	493	(*)	----	30	541	25.9	58	30	514	(*)	----	30	490	(*)	----	30	517	(*)	----
900	30	970	21.4	62	30	974	(*)	----	30	963	(*)	----	30	1,008	19.1	62	30	1,454	11.9	58	30	1,459	(*)	----	30	1,460	13.0	54
850	30	1,465	19.5	55	30	1,475	27.1	20	30	1,456	(*)	----	30	1,508	19.1	62	30	1,958	8.1	64	30	1,981	18.1	34	30	1,966	8.8	59
800	30	1,985	17.1	51	30	2,005	22.7	23	30	1,977	16.3	39	30	2,027	17.6	44	30	2,491	4.4	66	30	2,529	13.5	39	30	2,500	4.5	64
750	30	2,538	13.9	45	30	2,563	17.7	27	30	2,523	12.5	41	30	2,582	15.1	33	30	3,047	0.6	70	30	3,105	8.5	46	30	3,054	0.0	70
700	30	3,111	9.9	44	30	3,145	12.5	32	30	3,096	7.7	48	30	3,157	11.4	32	30	3,638	−3.0	68	30	3,710	3.3	54	30	3,647	−4.0	72
650	30	3,724	5.5	43	30	3,761	7.0	38	30	3,698	2.7	56	30	3,775	6.9	33	30	4,268	−6.4	61	30	4,355	−1.9	60	30	4,271	−7.8	62
600	30	4,372	0.8	40	30	4,413	2.1	38	30	4,343	−2.6	62	30	4,424	2.1	35	30	4,947	−10.3	58	30	5,040	−7.2	64	30	4,947	−12.1	62
550	30	5,066	−3.9	39	30	5,109	−2.9	39	30	5,024	−7.6	67	30	5,121	−2.5	32	30	5,671	−15.0	56	29	5,780	−12.5	66	29	5,667	−16.9	62
500	30	5,810	−8.9	35	29	5,858	−7.9	----	29	5,760	−12.7	67	30	5,870	−7.5	----	30	6,468	−20.2	62	29	6,586	−17.6	57	29	6,459	−22.2	----
450	30	6,625	−14.5	39	29	6,677	−13.2	----	29	6,563	−18.0	58	30	6,693	−12.9	----	29	7,327	−26.5	----	28	7,446	−24.2	----	28	7,305	−28.4	----
400	30	7,500	−20.7	----	29	7,556	−19.5	----	28	7,423	−23.9	48	29	7,573	−19.2	----	28	8,281	−33.3	----	28	8,405	−31.3	----	28	8,247	−35.7	----
350	30	8,473	−27.9	----	28	8,534	−27.0	----	28	8,385	−30.6	----	29	8,552	−26.8	----	28	9,344	−41.8	----	28	9,479	−39.2	----	27	9,299	−44.1	----
300	30	9,560	−36.6	----	27	9,624	−35.8	----	28	9,463	−38.5	----	29	9,644	−35.3	----	24	10,545	−51.0	----	27	10,708	−47.3	----	27	10,498	−52.4	----
250	30	10,797	−46.1	----	27	10,864	−45.7	----	27	10,695	−47.6	----	29	10,888	−45.3	----	22	11,971	−54.8	----	25	12,154	−55.2	----	25	11,936	−54.7	----
200	26	12,253	−56.1	----	24	12,315	−56.2	----	22	12,140	−54.8	----	29	12,340	−56.2	----	18	12,819	−52.8	----	21	12,997	−57.9	----	22	12,790	−53.4	----
175	24	13,089	−60.6	----	15	13,161	−60.7	----	18	12,974	−57.7	----	27	13,175	−61.5	----	17	13,819	−52.0	----	13	13,946	−58.0	----	15	13,768	−52.6	----
150	15	14,075	−63.1	----	6	14,085	−66.2	----	9	13,939	−59.6	----	16	14,122	−65.4	----	9	15,019	−52.9	----	----	----	----	----	10	14,963	−53.9	----
125	11	15,207	−64.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
100	8	16,532	−65.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Greensboro, N. C. (984.7 mb.)				Hatteras, N. C. (1,016.0 mb.)				Havana, Cuba (1,019.7 mb.)				Honolulu, T. H. (1,016.2 mb.)				Huntington, W. Va. (994.5 mb.)				International Falls, Minn. (970.9 mb.)				Joliet, Ill. (992.0 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	273	20.9	76	30	3	22.2	85	18	49	25.4	88	30	3	27.5	60	24	172	19.6	84	30	360	14.1	70	30	178	16.9	80
1,000	30	138	(*)	----	30	141	21.5	83	18	136	25.4	88	30	145	25.3	63	24	123	(*)	----	30	108	(*)	----	30	108	(*)	----
950	30	584	20.9	67	30	590	19.5	73	18	592	23.0	82	30	598	21.5	70	24	573	20.0	71	30	546	14.5	60	30	551	17.6	73
900	30	1,050	17.8	70	30	1,050	17.0	66	18	1,058	20.0	78	30	1,061	18.1	73	24	1,031	16.8	72	30	998	11.2	63	30	1,010	15.2	73
850	30	1,538	14.3	75	30	1,536	14.6	59	18	1,549	16.8	71	30	1,549	15.2	71	24	1,517	13.3	75	30	1,473	7.8	70	30	1,492	12.4	68
800	30	2,048	11.1	72	30	2,046	11.9	55	18	2,065	14.1	68	30	2,062	14.6	45	24	2,025	10.0	71	30	1,971	4.8	74	30	2,000	10.7	59
750	30	2,590	8.1	65	30	2,588	9.3	45	18	2,611	11.0	63	30	2,608	12.7	32	24	2,565	7.6	54	30	2,500	2.1	74	30	2,539	8.0	51
700	30	3,151	5.0	57	30	3,154	6.4	39	18	3,181	7.6	59	30	3,183	10.7	19	24	3,125	4.8	47	30	3,050	−0.4	62	30	3,102	5.3	48
650	30	3,757	1.7	43	30	3,757	3.2	38	16	3,792	3.9	67	30	3,798	7.6	----	24	3,731	1.5	49	29	3,642	−3.6	50	30	3,707	2.1	46
600	30	4,394	−1.8	36	30	4,402	−0.7	38	16	4,436	0.2	----	30	4,450	4.0	----	24	4,366	−2.4	48	29	4,267	−6.7	45	30	4,345	−1.7	43
550	30	5,082	−5.7	33	30	5,089	−5.0	----	16	5,132	−3.6	----	30	5,154	−0.5	----	24	5,056	−5.8	----	29	4,950	−10.1	46	29	5,032	−5.8	48
500	30	5,823	−10.3	37	30	5,834	−9.5	----	15	5,878	−7.9	----	29	5,905	−5.8	----	24	5,794	−10.4	----	29	5,671	−14.8	41	29	5,773	−10.7	46
450	30	6,634	−15.7	----	30	6,644	−14.7	----	15	6,699	−12.6	----	29	6,731	−12.0	----	24	6,601	−15.9	----	29	6,470	−20.1	45	29	6,580	−15.8	44
400	30	7,507	−21.5	----	30	7,522	−20.5	----	15	7,582	−18.7	----	29	7,612	−18.6	----	24	7,476	−22.2	----	28	7,328	−26.0	----	29	7,453	−22.2	----
350	30	8,477	−28.7	----	29	8,497	−27.1	----	15	8,562	−26.1	----	29	8,594	−25.8	----	24	8,443	−29.6	----	25	8,287	−33.4	----	29	8,419	−29.7	----
300	30	9,562	−37.2	----	28	9,589	−35.3	----	13	9,656	−34.6	----	28	9,692	−34.0	----	24	9,524	−37.8	----	22	9,356	−41.7	----	29	9,500	−37.9	----
250	29	10,798	−46.6	----	27	10,845	−44.5	----	12	10,901	−45.3	----	28	10,944	−43.2	----	23	10,757	−47.2	----	20	10,557	−50.8	----	26	10,732	−46.7	----
200	27	12,238	−57.5	----	26	12,305	−55.0	----	10	12,349	−57.6	----	27	12,413	−53.4	----	23	12,201	−57.3	----	15	11,972	−54.0	----	24	12,193	−55.9	----
175	24	13,068	−62.4	----	22	13,144	−60.3	----	7	13,172	−64.3	----	25	13,265	−58.0	----	22	13,035	−61.6	----	12	12,832	−53.1	----	21	13,038	−59.3	----
150	21	14,006	−65.8	----	12	14,105	−62.4	----	----	----	----	----	21	14,221	−62.2	----	19	13,978	−64.1	----	8	13,825	−51.8	----	17	13,981	−61.7	----
125	11	15,095	−66.2	----	----	----	----	----	----	----	----	----	10	15,344	−64.3	----	9	15,059	−63.5	----	6	15,006	−52.7	----	9	15,119	−62.2	----
100	8	16,445	−64.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Lake Charles, La. (1,012.4 mb.)				Lander, Wyo. (826.4 mb.)				Las Vegas, Nev. (939.7 mb.)				Little Rock, Ark. (1,002.7 mb.)				Mazatlan, Mexico (1,007.2 mb.)				Medford, Oreg. (967.6 mb.)				Merida, Mexico (1,008.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	5	25.6	85	29	1,696	13.2	58	30	574	31.3	14	30	79	24.4	80	29	14	27.7	74	30	401	20.0	48	30	27	29.2	65
1,000	30	114	25.2	82	29	56	(*)	----	30	11	(*)	----	30	103	24.3	80	29	78	26.9	74	30	116	(*)	----	30	99	28.5	66
950	30	569	22.4	78	29	508	(*)	----	30	478	(*)	----	30	556	23.5	75	29	534	23.8	68	30	564	18.5	50	30	553	25.7	67
900	30	1,034	19.9	71	29	974	(*)	----	30	959	28.2	16	30	1,023	20.5	76	29	1,003	22.5	63	30	1,019	14.3	56	30	1,028	22.2	70
850	30	1,525	17.6	62	29	1,456	(*)	----	30	1,461	23.5	19	30	1,516	18.0	65	29	1,498	19.8	66	30	1,499	10.1	64	30	1,524	19.2	73
800	30	2,042	14.8	58	29	1,969	13.6	46	30	1,984	18.6	22	30	2,034	16.0	48	29	2,019	17.0	66	30	2,000	6.2	69	30	2,043	15.6	72
750	30	2,593	12.0	48	29	2,512	9.6	47	30	2,534	13.5	27	30	2,585	13.7	39	29	2,576	14.3	59	30	2,531	3.0	63	30	2,591	12.2	68
700	30	3,161	8.9	43	29	3,078	5.1	52	30	3,107	8.5	31	30	3,158	10.5	38	29	3,148	11.1	55	30	3,082	−0.3	55	30	3,164	5.8	64
650	29	3,775	5.6	37	29	3,678	0.2	59	30	3,715	3.2	36	30	3,773	6.3	47	28	3,766	7.0	52	30	3,673	−3.6	46	30	3,775	5.6	50
600	29	4,421	1.5	----	29	4,315	−4.4	58	30	4,357	−1.2	35	30	4,422	1.8	48	29	4,417	2.6	50	30	4,300	−7.0	39	30	4,424	2.0	42
550	29	5,118	−3.1	----	29	4,996	−9.1	57	30	5,048	−5.4	----	30	5,119	−2.8	41	29	5,116	−2.1	51	30	4,977	−10.8	43	29	5,118	−2.1	35
500	29	5,863	−8.2	----	29	5,726	−14.0	57	30	5,788	−9.9	----	30	5,869	−7.3	----	29	5,867	−6.5	41	30	5,700	−15.3	41	29	5,871	−6.7	30
450	29	6,686	−13.2	----	28	6,522	−19.7	54	30	6,600	−15.4	----	30	6,692	−12.2	----	28	6,696	−11.4	36	30	6,494	−20.3	40	28	6,694	−11.7	----
400	29	7,561	−19.6	----	28	7,382	−26.0	----	30	7,472	−22.0	----	29	7,573	−18.4	----	28	7,578	−17.1	----	30	7,350	−26.4	----	28	7,580	−17.7	----
350	28	8,539	−26.6	----	28	8,334	−33.2	----	30	8,439	−29.8	----	27	8,557	−25.7	----	28	8,565	−24.4	----	30	8,300	−33.6	----	28	8,564	−25.4	----
300	28	9,633	−34.9	----	26	9,399	−41.5	----	30	9,518	−38.4	----	25	9,653	−33.8	----	28	9,669	−32.9	----	30	9,363	−41.8	----	28	9,662	−34.2	----
250	28	10,879	−44.5	----	25	10,617	−50.5	----	30	10,746	−47.4	----	23	10,911	−41.3	----	28	10,927	−42.8	----	30	10,574	−50.0	----	28	10,911	−44.1	----
200	27	12,337	−55.5	----	21	12,054	−56.6	----	27	12,199	−56.3	----	19	12,363	−53.9	----	24	12,396	−54.4	----	30	12,010	−55.9	----	21	12,376	−55.3	----
175	26	13,177	−61.4	----	15	12,916	−56.4	----	25	13,043	−59.8	----	14	13,226	−59.0	----	20	13,238	−60.8	----	30	12,857	−56.7	----	9	13,219	−61.5	----
150	23	14,122	−66.4	----	12	13,905	−57.4	----	15	14,004	−61.7	----	8	14,219	−61.7	----	13	14,181	−67.7	----	27	13,833	−56.8	----	----	----	----	----
125	17	15,225	−70.5	----	9	15,049	−58.7	----	11	15,122	−64.6	----	----	----	----	----	----	----	----	----	18	14,975	−57.8	----	----	----	----	----
100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	16,316	−54.6	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during June 1947*—Continued

Standard pressure surface (mb.)	Miami, Fla. (1,015.4 mb.)				Nantucket, Mass. (1,014.5 mb.)				Nashville, Tenn. (993.2 mb.)				New Orleans, La. (1,013.5 mb.)				North Platte, Nebr. (913.3 mb.)				Oakland, Calif. (1,012.0 mb.)				Ogden, Utah (860.8 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	4	25.1	85	28	14	12.8	91	30	180	23.3	74	30	2	25.8	84	29	849	17.3	77	30	6	18.1	68	30	1,355	17.2	53
1,000	30	139	24.6	83	28	134	14.1	81	30	119	(*)	----	30	120	25.6	81	29	61	(*)	----	30	108	17.2	67	30	49	(*)	----
950	30	591	22.2	82	28	574	14.2	61	30	572	21.9	73	30	580	23.4	77	29	509	(*)	----	30	552	17.6	53	30	504	(*)	----
900	30	1,058	19.3	81	28	1,024	12.2	56	30	1,036	19.0	74	30	1,044	20.7	73	29	974	17.6	70	30	1,007	17.0	43	30	974	(*)	----
850	30	1,548	16.4	78	28	1,502	10.4	55	30	1,525	15.8	73	30	1,537	17.9	68	29	1,462	15.6	65	30	1,492	14.4	40	30	1,463	17.2	48
800	30	2,063	13.5	75	28	2,005	7.7	51	30	2,039	13.3	61	30	2,054	15.3	61	29	1,975	12.9	64	30	2,001	11.7	36	30	1,977	13.6	46
750	30	2,611	10.4	75	28	2,540	5.8	43	30	2,588	10.7	54	30	2,602	12.6	51	29	2,518	9.4	63	30	2,542	8.8	33	30	2,518	9.1	53
700	30	3,177	7.4	76	28	3,096	3.1	33	30	3,153	7.6	51	30	3,175	9.4	48	29	3,084	6.3	57	30	3,105	5.9	----	30	3,083	4.6	59
650	30	3,788	3.9	72	27	3,697	−0.2	36	30	3,763	4.1	48	30	3,790	5.9	41	29	3,689	2.3	58	29	3,711	3.0	----	30	3,683	−0.1	63
600	30	4,431	0.2	72	27	4,330	−4.1	42	30	4,407	0.2	46	30	4,438	2.3	38	29	4,330	−2.0	57	29	4,352	−0.3	----	30	4,318	−4.8	64
550	30	5,123	−3.6	66	27	5,011	−8.4	44	29	5,099	−3.9	38	30	5,136	−1.9	38	28	5,018	−6.4	55	28	5,048	−4.0	----	30	4,997	−9.6	66
500	30	5,872	−7.9	64	26	5,748	−12.5	47	28	5,845	−8.8	42	28	5,886	−6.5	42	28	5,752	−11.5	52	28	5,792	−8.8	----	30	5,727	−14.6	63
450	30	6,690	−12.8	64	26	6,549	−17.7	----	27	6,668	−13.7	----	27	6,711	−11.5	----	26	6,562	−17.1	----	28	6,610	−14.2	----	30	6,523	−19.9	57
400	30	7,575	−18.2	65	26	7,415	−23.6	----	27	7,540	−19.8	----	26	7,597	−17.5	----	26	7,479	−23.3	----	27	7,485	−20.5	----	30	7,381	−26.1	----
350	30	8,558	−25.1	----	26	8,377	−30.2	----	27	8,516	−27.0	----	24	8,581	−24.8	----	26	8,392	−30.7	----	26	8,459	−27.7	----	30	8,333	−23.3	----
300	30	9,659	−33.3	----	26	9,454	−38.3	----	26	9,608	−35.1	----	23	9,684	−33.0	----	26	9,467	−39.0	----	25	9,548	−36.0	----	30	9,397	−41.8	----
250	29	10,913	−43.5	----	25	10,679	−46.8	----	24	10,861	−44.4	----	21	10,939	−42.4	----	26	10,694	−47.8	----	23	10,796	−45.2	----	30	10,608	−50.1	----
200	25	12,372	−55.4	----	22	12,140	−54.2	----	24	12,319	−55.4	----	19	12,414	−53.2	----	25	12,132	−56.5	----	18	12,275	−54.0	----	29	12,047	−55.5	----
175	22	13,213	−61.6	----	22	12,989	−57.0	----	23	13,168	−60.8	----	14	13,269	−58.6	----	24	12,980	−58.4	----	12	13,146	−57.6	----	24	12,888	−56.4	----
150	11	14,125	−67.3	----	14	13,968	−60.1	----	20	14,118	−65.0	----	6	14,239	−64.0	----	22	13,951	−59.7	----	10	14,105	−59.1	----	21	13,863	−57.3	----
125	----	----	----	----	9	15,101	−59.0	----	9	15,233	−65.5	----	----	----	----	----	17	15,089	−61.9	----	----	----	----	----	12	15,021	−58.8	----
100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	13	16,478	−63.0	----	----	----	----	----	----	----	----	----

	Oklahoma City, Okla. (964.1 mb.)				Omaha, Nebr. (974.0 mb.)				Phoenix, Ariz. (966.8 mb.)				Pittsburgh, Pa. (970.6 mb.)				Portland, Maine (1,012.8 mb.)				Rapid City, S. Dak. (899.0 mb.)				St. Cloud, Minn. (973.1 mb.)			
Surface	29	391	24.5	70	30	308	20.6	78	30	339	32.8	19	30	382	19.3	70	30	20	12.9	85	30	980	14.6	78	30	316	16.2	76
1,000	29	69	(*)	----	30	80	(*)	----	30	32	(*)	----	30	123	(*)	----	30	127	13.9	79	30	64	(*)	----	30	82	(*)	----
950	29	519	24.5	65	30	524	19.4	74	30	499	32.6	18	30	573	19.1	66	30	567	14.1	67	30	511	(*)	----	30	527	16.4	68
900	29	993	22.3	62	30	988	16.6	76	30	980	28.7	20	30	1,030	16.3	65	30	1,016	12.6	64	30	972	(*)	----	30	979	13.5	71
850	29	1,489	19.7	61	30	1,473	14.3	74	30	1,483	24.2	23	30	1,514	13.0	66	30	1,495	10.4	61	30	1,455	13.8	66	30	1,459	10.6	69
800	29	2,009	17.8	51	30	1,985	12.4	65	30	2,008	19.4	27	30	2,021	9.8	65	30	1,997	7.7	63	30	1,963	10.6	69	30	1,962	8.2	63
750	29	2,564	15.0	42	30	2,528	9.5	61	30	2,559	14.5	32	30	2,562	6.8	60	30	2,531	4.8	60	30	2,502	7.2	68	30	2,501	5.7	65
700	29	3,140	11.2	41	30	3,094	6.5	52	30	3,135	9.9	35	30	3,119	4.0	51	30	3,087	2.1	56	30	3,063	3.9	67	30	3,057	2.8	60
650	29	3,755	6.9	38	30	3,698	2.7	46	30	3,750	5.7	32	30	3,723	1.0	42	30	3,686	−1.4	59	30	3,665	0.2	67	30	3,159	−0.3	62
600	29	4,406	2.2	40	29	4,339	−1.7	43	29	4,396	1.5	32	30	4,358	−2.6	40	30	4,315	−5.2	53	30	4,300	−3.7	66	30	4,291	−3.6	56
550	29	5,102	−2.6	39	29	5,027	−6.0	37	29	5,090	−2.7	----	30	5,048	−6.6	42	30	4,996	−9.1	47	29	4,986	−8.1	67	30	4,979	−7.7	51
500	28	5,853	−7.4	----	29	5,767	−10.9	----	29	5,840	−7.7	----	30	5,781	−11.2	41	30	5,725	−13.6	46	29	5,718	−12.5	61	30	5,709	−12.6	45
450	25	6,670	−12.9	----	28	6,574	−16.2	----	29	6,659	−13.4	----	30	6,594	−16.3	----	30	6,527	−19.1	51	29	6,520	−17.8	63	29	6,515	−18.0	47
400	24	7,548	−19.4	----	28	7,445	−22.4	----	28	7,540	−19.7	----	30	7,459	−22.4	----	30	7,385	−24.8	----	29	7,387	−23.5	----	29	7,376	−24.0	----
350	23	8,533	−26.5	----	28	8,412	−29.4	----	28	8,516	−27.7	----	30	8,425	−29.3	----	29	8,336	−32.2	----	29	8,350	−30.8	----	29	8,336	−31.3	----
300	23	9,630	−34.2	----	28	9,494	−37.7	----	27	9,606	−36.8	----	30	9,508	−37.3	----	29	9,406	−40.2	----	29	9,425	−39.1	----	28	9,411	−39.6	----
250	21	10,889	−43.3	----	26	10,740	−46.4	----	27	10,843	−46.5	----	30	10,742	−46.6	----	29	10,627	−48.2	----	29	10,649	−48.5	----	28	10,633	−48.6	----
200	11	12,350	−54.5	----	26	12,191	−55.2	----	27	12,291	−56.6	----	27	12,195	−55.1	----	25	12,061	−55.1	----	26	12,103	−55.4	----	26	12,084	−54.9	----
175	7	13,179	−59.3	----	25	13,041	−58.6	----	24	13,132	−61.0	----	25	13,038	−58.7	----	21	12,905	−56.8	----	18	12,932	−57.0	----	25	12,937	−56.1	----
150	----	----	----	----	23	14,004	−61.3	----	19	14,085	−64.9	----	20	13,991	−59.6	----	19	13,872	−57.1	----	8	13,901	−54.9	----	19	13,882	−56.7	----
125	----	----	----	----	18	15,122	−62.4	----	8	15,182	−68.0	----	12	15,142	−60.2	----	18	15,017	−57.5	----	----	----	----	----	9	15,003	−56.8	----
100	----	----	----	----	12	16,518	−63.1	----	----	----	----	----	8	16,519	−59.7	----	11	16,430	−57.3	----	----	----	----	----	5	16,453	−58.4	----

	San Antonio, Tex. (982.9 mb.)				San Juan, P. R. (1,015.6 mb.)				Santa Maria, Calif. (1,004.7 mb.)				Sault Ste. Marie, Mich. (986.9 mb.)				Spokane, Wash. (942.0 mb.)				Swan Island, W. I. (1,011.8 mb.)				Tacubaya, Mexico (773.5 mb.)			
Surface	28	240	27.0	72	30	15	25.9	81	30	71	17.1	71	29	221	12.1	80	30	598	19.1	46	30	10	27.0	83	28	2,306	17.7	67
1,000	28	86	(*)	----	30	152	24.6	81	30	111	16.5	73	29	109	(*)	----	30	81	(*)	----	30	114	26.2	84	28	45	(*)	----
950	28	542	25.1	77	30	603	21.2	85	30	554	15.7	65	29	547	13.9	63	30	528	(*)	----	30	570	22.7	85	28	509	(*)	----
900	28	1,015	21.9	80	30	1,068	18.0	83	30	1,007	17.1	41	29	997	12.2	61	30	988	16.0	47	30	1,036	20.1	78	28	990	(*)	----
850	28	1,511	19.6	72	30	1,556	15.2	79	30	1,494	16.3	38	29	1,474	9.6	61	30	1,470	11.9	53	30	1,528	17.5	73	28	1,488	(*)	----
800	28	2,031	17.1	59	30	2,068	13.1	63	30	2,007	13.5	31	29	1,975	6.9	58	30	1,974	7.6	61	30	2,046	15.2	62	28	2,014	(*)	----
750	28	2,586	14.7	43	30	2,611	10.4	49	30	2,555	10.8	25	29	2,511	4.5	53	30	2,507	3.1	70	30	2,596	12.1	57	28	2,573	15.6	70
700	28	3,161	11.7	33	30	3,180	7.5	44	30	3,119	7.9	27	29	3,063	2.2	47	30	3,057	−1.4	77	30	3,116	8.7	54	28	3,151	11.1	76
650	28	3,781	7.8	----	29	3,790	4.5	36	30	3,732	4.9	26	29	3,664	−0.8	43	30	3,648	−4.8	66	30	3,781	4.8	54	28	3,769	6.5	82
600	28	4,430	3.6	----	29	4,435	0.9	29	30	4,375	1.7	----	29	4,293	−4.3	39	30	4,270	−8.3	57	30	4,424	0.7	51	28	4,421	1.9	57
550	26	5,132	−1.0	----	29	5,129	−3.3	30	30	5,075	−2.1	----	29	4,978	−8.2	----	30	4,944	−12.5	55	29	5,120	−3.4	52	28	5,118	−2.7	55
500	24	5,881	−5.9	----	29	5,875	−8.3	38	30	5,822	−7.1	----	29	5,707	−13.0	----	30	5,661	−17.1	52	29	5,866	−7.7	52	28	5,869	−7.3	73
450	23	6,707	−11.4	----	29	6,698	−13.7	46	30	6,642	−12.8	----	29	6,512	−18.4	----	30	6,453	−22.5	----	29	6,690	−12.2	49	28	6,695	−11.4	59
400	23	7,593	−17.1	----	29	7,570	−19.8	47	30	7,522	−19.5	----	29	7,372	−24.6	----	30	7,298	−28.5	----	29	7,570	−17.9	49	28	7,579	−16.8	51
350	21	8,584	−24.3	----	29	8,548	−26.8	----	30	8,499	−26.9	----	28	8,329	−31.9	----	30	8,240	−35.5	----	29	8,555	−24.8	----	28	8,568	−23.9	----
300	19	9,683	−33.2	----	29	9,642	−34.8	----	30	9,592	−35.2	----	27	9,404	−40.0	----	30	9,295	−43.5	----	29	9,657	−33.4	----	27	9,675	−32.3	----
250	18	10,936	−42.7	----	29	10,890	−44.6	----	30	10,839	−44.0	----	24	10,619	−48.6	----	30	10,499	−51.2	----	29	10,910	−43.6	----	24	10,943	−42.2	----
200	18	12,406	−53.5	----	28	12,342	−56.1	----	22	12,322	−53.0	----	16	12,028	−53.9	----	29	11,941	−53.1	----	28	12,373	−55.6	----	10	12,309	−55.2	----
175	16	13,253	−59.3	----	27	13,178	−62.5	----	12	13,188	−56.7	----	13	12,868	−54.0	----	29	12,803	−51.9	----	27	13,209	−62.3	----	8	13,243	−62.6	----
150	10	14,205	−64.4	----	21	14,117	−68.2	----	8	14,155	−59.9	----	7	13,879	−55.0	----	29	13,803	−51.4	----	22	14,148	−69.1	----	----	----	----	----
125	----	----	----	----	8	15,204	−71.7	----	----	----	----	----	----	----	----	----	27	14,989	−52.2	----	----	----	----	----	----	----	----	----
100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	20	16,432	−51.8	----	----	----	----	----	----	----	----	----
80	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9	17,852	−50.6	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during June 1947*—Continued

Standard pressure surface (mb.)	Tampa, Fla. (1,015.1 mb.)				Tatoosh Island, Wash. (1,012.5 mb.)				Toledo, Ohio (991.4 mb.)				Washington, D. C. (1,013.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	9	24.7	84	30	31	13.3	83	30	191	17.7	79	30	25	21.0	76
1,000	30	141	24.5	84	30	135	12.4	84	30	116	(*)	----	30	137	20.6	72
950	30	593	22.2	80	30	565	10.2	81	30	558	17.4	67	30	583	18.7	68
900	30	1,059	19.5	77	30	1,013	8.2	76	30	1,017	14.7	67	30	1,043	16.0	68
850	30	1,551	16.8	76	30	1,483	5.5	74	30	1,498	12.1	66	30	1,527	12.9	66
800	30	2,066	13.6	75	30	1,976	3.0	69	30	2,004	9.4	58	30	2,034	9.9	66
750	30	2,612	10.5	69	30	2,505	0.5	61	30	2,545	6.7	45	30	2,573	6.9	58
700	30	3,180	7.4	64	30	3,048	−2.3	54	30	3,102	3.9	44	30	3,133	3.9	49
650	30	3,791	4.3	53	30	3,637	−5.3	52	30	3,704	1.0	40	29	3,731	0.6	44
600	30	4,435	0.6	46	30	4,259	−8.7	43	30	4,341	−2.5	40	29	4,370	−2.9	47
550	30	5,127	−3.6	46	30	4,930	−12.8	43	30	5,027	−6.6	42	29	5,052	−7.2	43
500	30	5,876	−7.9	49	30	5,649	−17.4	45	30	5,764	−11.3	----	29	5,791	−11.9	45
450	30	6,696	−12.8	50	29	6,439	−22.7	48	29	6,574	−16.3	----	29	6,597	−17.1	48
400	29	7,576	−18.8	----	29	7,286	−28.8	51	29	7,444	−22.1	----	29	7,464	−23.4	----
350	29	8,556	−25.6	----	27	8,218	−35.7	----	29	8,410	−29.6	----	29	8,427	−30.4	----
300	29	9,655	−33.9	----	27	9,274	−42.7	----	28	9,494	−38.1	----	29	9,505	−38.4	----
250	29	10,905	−44.0	----	22	10,486	−48.6	----	25	10,738	−47.5	----	29	10,734	−47.7	----
200	27	12,366	−55.5	----	22	11,946	−49.8	----	22	12,182	−57.3	----	28	12,181	−56.2	----
175	27	13,204	−61.7	----	19	12,826	−49.1	----	18	13,036	−61.0	----	27	13,021	−59.6	----
150	23	14,145	−66.8	----	18	13,835	−49.0	----	13	13,993	−62.6	----	24	13,976	−62.2	----
125	12	15,242	−70.2	----	16	15,039	−49.3	----	6	15,116	−63.7	----	15	15,086	−62.1	----
100	5	16,554	−71.1	----	7	16,500	−47.4	----	----	----	----	----	12	16,450	−61.2	----

*Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0500, G. C. T. except at Ciudad Victoria, Mazatlan, and Merida, where they are taken near 0200, G. C. T.
"Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below −20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during June 1947. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	30	173	6.3	30	224	4.9	29	312	1.4	29	333	0.8	30	253	0.9	30	308	4.0
500							29	286	1.3									
1,000	30	178	8.5				28	260	2.1				30	201	1.5	30	314	4.7
1,500	30	182	8.8				27	243	2.9	29	288	1.7	26	237	1.6	30	309	4.8
2,000	30	191	7.6	30	228	5.9	26	265	3.5	29	282	2.9	22	277	2.4	30	292	5.2
2,500	30	201	6.4	30	233	6.2	23	287	4.4	28	270	3.9	19	298	5.1	29	279	5.1
3,000	28	216	5.9	30	238	6.8	19	302	3.4	24	250	6.2	13	271	7.0	28	269	4.5
4,000	28	239	5.3	30	245	8.8	17	290	4.2	20	257	12.4	13	269	11.9	21	263	4.8
5,000	26	254	4.9	28	257	11.0	12	301	4.6	19	261	14.0				17	263	6.2
6,000	24	257	5.5	25	258	15.0	10	300	5.4	16	262	13.6				12	258	6.9
8,000	21	256	9.3	22	256	19.5												
10,000	16	262	12.7	18	256	21.1												
12,000	13	260	15.9	11	265	22.9												

Altitude (meters) m. s. l.	Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (276 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	30	140	7.6	26	240	2.2	20	174	1.8	29	172	3.3	30	219	2.2	29	71	0.9	30	243	4.7
500	30	145	10.8	26	254	3.7	20	201	3.3	29	183	4.9	30	219	2.4						
1,000	29	155	10.0	24	258	4.4	20	233	4.3	28	201	4.1	29	215	3.6						
1,500	28	161	8.1	21	253	4.8	18	264	6.1	28	224	3.2	28	233	3.8				30	244	5.8
2,000	25	160	6.6	19	261	3.7	15	264	8.2	25	261	2.6	25	261	5.2	29	75	1.7	30	247	6.6
2,500	21	170	5.8	18	270	3.6	11	258	8.7	24	278	4.2	17	264	7.8	29	110	1.3	30	245	6.8
3,000	21	155	4.4	16	281	4.9				24	280	4.0	16	274	8.5	27	203	1.6	30	255	7.1
4,000	19	138	3.6	13	295	5.3				21	291	5.1				23	247	7.8	30	255	8.8
5,000	17	145	2.3							18	294	6.3				22	253	12.0	30	250	10.1
6,000	15	176	2.6							14	304	7.5				19	257	14.2	29	253	10.6
8,000	10	19	1.3							10	305	8.2				14	271	18.8	26	250	10.7
10,000																			18	259	14.7
12,000																			14	270	17.5

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	30	243	2.6	30	251	2.3	29	206	1.7	27	267	1.8	27	107	2.4	29	195	2.5
500							29	199	3.0				27	141	2.2	29	203	3.2
1,000							29	220	3.4	27	269	2.3	27	221	.9	28	202	4.7
1,500				30	250	2.3	29	238	3.2	27	272	3.0	26	289	1.9	23	223	5.4
2,000	30	238	2.6	30	243	3.3	27	265	3.9	26	270	4.2	25	303	3.3	18	244	5.2
2,500	30	229	3.6	30	235	4.0	24	286	5.9	22	261	4.7	23	283	3.6	16	263	4.2
3,000	30	230	2.6	29	240	4.9	22	289	6.9	21	269	6.2	23	281	2.8	14	275	5.5
4,000	28	238	4.3	24	231	6.2	19	287	10.2	14	287	6.5	18	287	4.1	10	270	7.4
5,000	16	249	8.3	20	238	7.4	13	293	10.5	10	276	9.2	17	287	5.3			
6,000	15	263	12.4	14	251	12.4	11	289	12.8	10	272	9.0	15	291	4.4			
8,000				11	268	18.5							11	287	6.9			
10,000				11	264	25.3												

Altitude (meters) m. s. l.	Las Vegas, Nev. (575 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	30	212	3.0	29	200	2.7	30	292	2.5	29	137	2.3	29	218	1.6	30	224	2.3	29	180	2.9
500				29	208	4.0	30	295	2.7	29	136	3.4	29	224	2.8	30	223	3.3	29	210	3.6
1,000	30	210	4.4	27	210	4.6	30	304	2.5	29	164	2.3	28	253	2.4	28	228	4.3	28	248	4.1
1,500	30	208	4.8	26	225	5.3	27	282	2.1	29	176	1.4	24	276	2.2	23	240	4.5	27	266	4.0
2,000	30	216	4.2	25	237	6.8	24	275	1.3	27	245	.8	19	302	2.3	21	255	5.1	23	265	4.8
2,500	30	226	4.2	20	244	7.9	18	312	.9	26	292	.8	18	283	2.4	17	264	7.6	19	288	4.7
3,000	30	244	5.1	19	239	8.0	18	292	2.3	26	292	1.5	16	311	2.2	13	256	8.2	16	303	4.2
4,000	30	248	8.3	17	257	7.3	17	301	5.5	21	262	3.0	14	321	3.0	10	266	11.7			
5,000	28	271	10.4	11	258	8.7	15	306	8.4	18	264	2.4	12	304	5.1						
6,000	27	279	13.5				13	298	11.1	15	289	2.4	11	282	5.2						
8,000	20	267	18.5				10	302	11.8												
10,000																					

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during April 1947. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*—Continued

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Cloud, Minn. (318 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	30	266	5.4	30	185	6.2	29	146	1.6	30	269	2.1	27	9	1.4	30	180	1.3	30	198	0.6	30	151	4.7	30	253	4.2	29	265	2.0	30	240	3.1	30	226	2.1	29	177	2.2
500	30	282	4.9	30	186	6.5	29	165	1.9	30	261	3.9	---	---	---	30	203	2.3	30	194	.8	30	152	5.9	29	267	3.7	29	265	2.3	30	238	3.0	---	---	---	29	200	2.6
1,000	30	297	2.9	30	189	7.5	26	199	2.4	30	249	5.0	27	8	1.3	29	220	4.0	29	192	1.6	30	163	5.5	22	308	2.9	28	217	2.9	30	234	3.3	30	238	4.1	29	238	2.7
1,500	29	320	3.2	28	207	8.0	24	235	4.1	30	239	5.6	27	349	1.0	26	235	6.7	28	277	1.9	30	165	6.2	21	323	3.0	27	208	3.8	29	228	3.4	29	235	4.4	28	268	2.9
2,000	27	334	2.8	23	218	8.1	20	251	6.3	30	230	5.8	26	214	1.9	19	254	8.7	23	262	2.9	29	173	5.9	20	305	3.1	22	218	2.9	26	228	3.7	27	245	5.3	24	271	4.5
2,500	27	306	2.7	22	236	8.2	18	264	8.9	30	228	6.7	24	241	5.1	19	264	9.4	17	270	4.0	28	182	5.4	19	286	4.4	22	238	4.5	21	240	2.6	26	249	5.5	22	283	6.0
3,000	27	310	3.0	19	246	8.9	16	274	11.6	30	233	8.1	21	254	7.7	17	273	9.7	16	258	5.4	27	190	4.1	19	267	5.2	21	258	6.9	18	267	2.6	22	247	5.2	22	290	7.5
4,000	26	315	6.3	19	261	10.2	13	280	15.0	30	239	8.8	17	263	11.5	14	268	11.6	14	266	9.3	24	198	3.8	18	256	7.6	19	278	8.8	12	292	3.8	13	262	5.8	18	280	10.9
5,000	24	312	9.1	17	270	11.6	13	273	15.7	28	252	9.8	14	262	11.6	11	268	9.5	---	---	---	22	210	2.9	15	245	10.3	16	305	8.7	10	265	4.8	13	264	7.3	16	275	12.4
6,000	23	311	12.0	15	274	11.1	12	266	19.5	26	249	9.7	11	263	12.6	---	---	---	---	---	---	17	223	4.2	15	246	10.4	11	307	12.7	---	---	---	---	---	---	13	277	13.2
8,000	15	292	12.8	---	---	---	---	---	---	21	252	12.0	---	---	---	---	---	---	---	---	---	14	238	5.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
10,000	---	---	---	---	---	---	---	---	---	16	263	17.7	---	---	---	---	---	---	---	---	---	11	263	6.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000	---	---	---	---	---	---	---	---	---	10	255	22.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during June 1947*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,501 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1]	34.1	w.	1,810	1	Burlington, Vt.	41.1	w.	4,810	12	Caribou, Maine	65.0	ene.	10,167	22	Portland, Maine.
East-Central [2]	33.7	ssw.	1,154	2	Louisville, Ky.	35.8	w.	3,754	7	Huntington, W. Va.	54.0	nnw.	9,735	23	Huntington, W. Va.
Southeast [3]	22.5	s.	817	13	Charleston, S. C.	22.2	nnw.	4,927	28	Spartanburg, S. C.	56.0	nw.	11,611	23	Jacksonville, Fla.
North-Central [4]	54.6	ssw.	1,572	4	Marquette, Mich.	44.0	w.	4,627	29	Marquette, Mich.	70.0	sw.	11,828	13	International Falls, Minn.
Central [5]	46.2	sw.	2,229	4	Sioux City, Iowa	38.4	wsw.	4,848	27	Lander, Wyo.	74.0	wnw.	12,299	26	Columbia, Mo.
South-Central [6]	35.4	ssw.	2,376	9	Tulsa, Okla.	34.5	ssw.	2,501	9	Tulsa, Okla.	59.2	wsw.	12,229	14	Little Rock, Ark.
Northwest [7]	29.4	wnw.	1,143	18	Ellensburg, Wash.	44.7	nw.	5,000	20	Medford, Oreg.	78.0	wnw.	11,561	20	Medford, Oreg.
West-Central [8]	36.2	wnw.	2,500	10	Denver, Colo.	52.0	nnw.	5,000	20	Red Bluff, Calif.	60.0	wnw.	5,605	10	Grand Junction, Colo.
Southwest [9]	35.0	ssw.	1,908	11	Winslow, Ariz.	52.0	ssw.	3,215	21	Albuquerque, N. Mex.	64.0	sw.	8,310	3	Albuquerque, N. Mex.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, ouisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

RIVER STAGES AND FLOODS FOR JUNE 1947

C. R. JORDAN

Precipitation during June was above normal over the greater part of the United States. Rainfall was particularly heavy in the central Mississippi and lower Missouri River Valleys. Two to four times the normal amounts for June fell in Iowa, Nebraska, Idaho, and Wyoming. It was drier than usual in the middle and southern Appalachians and over a broad strip extending across the southern part of the country, except for Louisiana, eastern Texas, and along the immediate south Atlantic Coast. Rainfall was below normal also in Nevada, western Idaho, and the eastern parts of Washington and Oregon.

Major floods occurred in the Central States. The severe and prolonged floods in the lower Missouri and central Mississippi Rivers were the worst in over 100 years. The Mississippi River at St. Louis, Mo. reached 40.3 feet, which was exceeded only by the flood of 1844. Several lives were lost and flood damage was tremendous. A report of the flood, with a table of flood stages for June, will be included in the July issue of the Review.

Drought conditions continued in the extreme Southwest, with water supplies critically short in some localities, according to the U. S. Geological Survey.

Locally heavy rainfall at Lake Charles, La., on June 19, produced local flooding. The heavy downpour of rain began at 5:50 a. m., and ended at 2:28 p. m. It was extremely limited in area and resulted from one continuous thunderstorm. Apparently the heaviest downpour occurred on the east side of the river almost directly over the city. The Mathieson Alkali Works, about 6 miles due west of Lake Charles, on the opposite side of the river, reported a total fall of only 6.25 inches. Cameron, about 40 miles south-southwest, reported a total of 0.22 inch during the day; Kinder, La. had 1.62 inches; Lafayette, 60 miles east, had a total of 0.19 inch. The highest wind recorded was 23 miles per hour from the north at 11:30 a. m., with an average velocity during the storm of 15 miles per hour from east-northeast, shifting to south and southeast near the end of the rainfall. The total fall at Lake Charles was 15.79 inches. There was considerable local flooding but the crest of the rise in the main river was 2 feet below flood stage.

CLIMATOLOGICAL DATA FOR JUNE 1947

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see Review, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature							Precipitation					
			Monthly extremes							Greatest monthly		Least monthly	
	Section average	Departure from the normal	Station	Highest	Date	Station	Lowest	Date	Section average	Departure from the normal	Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	77.4	−0.9	2 stations	98	9	Valley Head	41	15	4.70	+0.45	Clanton	9.04	Thurlow Dam	1.85
Arizona	73.9	−1.3	Mohawk	115	16	2 stations	21	12	.11	−.23	Stephens Ranch	1.24	53 stations	.00
Arkansas	76.7	−.4	Booneville	101	30	Mammoth Spring	39	13	3.88	−.21	Odell	11.34	Oden	.50
California	67.2	−.7	2 stations	118	1 16	Ellery Lake	22	21	.75	+.42	Lakeshore	10.61	77 stations	.00
Colorado	68.7	−2.9	Eversoll Ranch	101	8	Dillon	11	13	2.63	+1.20	Ovid	8.79	Kline	.08
Florida	79.8	−.1	2 stations	100	9	Glen St. Mary	54	24	8.75	+1.93	Homestead	22.51	Tarpon Springs	1.56
Georgia	76.7	−1.5	Camp Stewart	102	8	2 stations	43	23	5.22	+.79	Savannah Airport	11.74	Albany Airport	2.42
Idaho	57.1	−3.0	Grandview	97	25	Sun Valley	21	29	2.67	+1.26	Burke	7.00	Grandview	.12
Illinois	69.8	−2.3	Mount Vernon	98	30	2 stations	37	3	6.32	+2.29	Rushville	13.21	Brookport	2.51
Indiana	69.0	−2.6	Tell City	102	30	2 stations	37	3	5.21	+1.28	La Porte	8.58	Warsaw	2.43
Iowa	66.3	−3.4	Britt	98	28	2 stations	37	1 2	10.40	+5.84	Van Meter (River)	18.12	Merrill	4.24
Kansas	71.8	−2.0	4 stations	105	28	Syracuse	36	13	5.20	+1.17	Wagstaff	11.73	Lakin	.58
Kentucky	72.1	−1.8	Pikeville	98	1 10	Headquarters	40	1	4.73	+.56	Waynesburg	9.93	Jackson	1.74
Louisiana	80.6	+.5	North Livingston	104	28	Pollock	50	16	4.61	−.16	Lake Charles	17.90	Mermontaw	.30
Maryland-Delaware	69.6	−1.3	Fort George G. Meade, Md.	99	12	Oakland, Md.	33	1	4.34	+.37	Cheltenham, Md.	13.17	Picardy, Md.	1.70
Michigan	61.6	−2.7	3 stations	94	1 10	2 stations	24	1 2	2.95	−.20	Eau Claire	7.83	Gladwin	.85
Minnesota	61.2	−3.5	New Ulm	95	27	Grand Marais	25	12	5.28	+1.12	Marshall	9.64	Winnibigoshish Dam	2.96
Mississippi	78.5	−.4	Clarksdale	100	12	Yazoo City	48	15	4.63	+.42	Moorehead	12.41	Holly Bluff	.71
Missouri	72.6	−1.0	Vandalia	99	28	Black	39	14	8.19	+3.41	Lathrop	23.60	Birch Tree	1.72
Montana	56.4	−3.2	Bridger	92	19	Wise River	24	29	3.95	+1.35	Virginia City	8.05	Hamilton	1.02
Nebraska	65.4	−3.8	2 stations	98	1 17	2 stations	30	1 12	8.19	+4.45	Plattsmouth	17.46	Haigler	2.87
Nevada	63.3	−1.1	Overton	111	15	Sheldon	25	28	.40	−.12	Jarbidge	3.16	14 stations	.00
New England	62.2	−1.8	Vanceboro, Maine	97	29	Woodstock, N. H.	28	4	4.43	+.89	Pinkham Notch, N. H.	8.46	Middleton, Mass.	2.12
New Jersey	67.6	−1.5	Burlington	96	11	2 stations	35	1 3	3.71	−.12	Phillipsburg	8.15	Cape May	.83
New Mexico	67.4	−.2	Lake McMillan	112	6	Adobe Ranch	20	1 1	.59	−.63	Philmont Ranch	2.30	9 stations	.00
New York	63.2	−1.9	Utica	100	11	Lake Placid Club	29	4	4.76	+1.08	Dannemord	9.93	Letchworth Park	1.88
North Carolina	72.8	−1.3	Monroe	104	10	4 stations	35	1 1	4.83	+.20	Mount Airy	13.00	Laurinburg	.68
North Dakota	59.6	−3.2	Hankinson	90	26	Edmore	24	1	5.81	+2.29	Richardton	10.09	Petersburg	2.73
Ohio	67.8	−1.9	Portsmouth	95	10	3 stations	36	4	5.55	+1.59	Centerbury	12.07	Marietta	2.15
Oklahoma	77.4	+.2	3 stations	109	1 27	4 stations	39	1 13	3.71	−.23	Muskogee	11.99	Kenton	.52
Oregon	56.8	−2.6	Lake Creek	98	24	2 stations	22	11	3.27	+1.94	Headworks	10.05	Arlington	.92
Pennsylvania	66.0	−2.1	2 stations	98	11	Philipsburg	29	4	4.04	−.12	Mercersburg	6.88	Scranton	1.86
South Carolina	76.2	−1.5	Saluda	103	10	2 stations	46	1 1	4.54	−.14	Charleston	10.76	Saluda	1.20
South Dakota	62.4	−3.8	Faith	97	4	Custer	28	13	6.24	+2.67	Pine Ridge	10.90	Wilmot	2.63
Tennessee	74.1	−.8	4 stations	98	12	Crossville	33	1	3.56	−.58	Covington	7.55	Halls	1.00
Texas	81.0	+.8	Knox City	111	28	Miami	39	14	2.17	−.82	Gainsville	8.01	2 stations	T
Utah	60.8	−3.6	Zion National Park	105	15	2 stations	25	1 10	2.30	+1.60	Gooseberry R. S.	5.55	2 stations	.15
Virginia	70.1	−1.7	Diamond Springs	102	1 11	Mountain Lake	35	17	4.36	+.21	Pinnacles	11.32	Randolph	.80
Washington	59.7	−.8	White Swan	98	24	Paradise R. S.	25	29	3.01	+1.35	Cedar Lake	9.45	Othello	.34
West Virginia	68.3	−1.5	2 stations	100	1 10	2 stations	31	1 1	3.80	−.65	Greenbottom	7.84	McNeill	1.79
Wisconsin	62.0	−3.0	5 stations	96	1 28	Mellen	25	2	4.55	+.35	Lancaster	11.49	Wausaukee	1.45
Wyoming	54.8	−3.7	2 stations	93	1 19	2 stations	17	1	4.21	+2.45	Middle Fork	10.26	Deaver	.51
Alaska (May)	42.3	+.8	2 stations	90	1 28	Umiat	−13	1	1.48	−.14	Cape Hinchinbrook	12.54	3 stations	T
Hawaii (May)	71.2	−.5	Waianae	91	11	Haleakala R. S.	38	1 15	7.60	+1.51	Kukui	63.00	3 stations	.00

1 Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JUNE 1947

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
NEW ENGLAND	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F*		°*F*	°*F.*		°*F.*	°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
							61.9	−1.1										78	4.16	+1.2											6.4			
Eastport	75	67	85	1,012.2	1,014.9	+1.7	54.0	−1.1	78	26	62	39	4	46	28	333	47	82	5.73	+2.8	2.21	11	9.8	sw.	42	e.	9	6	11	13	6.6	0.0	0.0	2
Portland, Maine [1]	103	5	43	1,010.8	1,014.9	+1.0	60.2	+.6	88	29	71	38	4	49	36	189	52	76	3.92	+.6	1.24	13	9.0	s.	31	n.	3	7	9	14	6.2	.0	.0	4
Concord [1]	289	4	45	1,004.4	1,014.9	+1.0	61.8	+1.1	91	29	75	34	4	48	44	144	52	75	5.03	+1.8	1.51	10	6.8	se.	24	e.	7	4	11	15	6.8	.0	.0	7
Burlington [1]	403	6	51	999.0	1,013.9	+.7	63.6	−2.1	92	11	74	36	4	53	37	121	56	78	4.84	+1.5	1.12	14	8.3	s.	34	s.	5	3	9	18	7.5	.0	.0	5
Boston [1]	124	33	62	1,010.5	1,015.0	+1.5	65.4	−1.1	89	29	74	46	4	56	32	86	54	70	2.88	.01	1.17	7	12.0	sw.	33	sw.	14	6	13	11	6.1	.0	.0	2
Nantucket [1]	12	4	34	1,015.2	1,015.9	+2.0	58.4	−2.6	76	30	65	39	5	51	23	207	54	88	2.95	−.3	1.57	9	13.3	sw.	35	ne.	3	6	10	14	6.5	.0	.0	2
Block Island	26	11	46	1,014.6	1,016.6	+1.7	60.6	−1.3	81	12	67	45	5	54	22	158	56	85	3.32	+.7	1.29	8	13.4	sw.	34	ne.	3	6	14	10	5.8	.0	.0	3
Providence [2]	159	46	60	1,009.8	1,015.6	+1.7	66.0	−2.3	92	28	76	45	21	56	33	72	54	76	3.93	+1.2	2.12	7	9.0	sw.	38	sw.	1	5	16	9	5.9	.0	.0	4
Hartford [1]	159	5	44	1,009.5	1,015.2	+1.3	65.4	−1.7	90	28	76	45	5	54	34	72	56	77	4.76	+1.7	1.50	11	8.4	s.	27	s.	1	5	14	11	6.2	.0	.0	5
New Haven [1]	107	5	39	1,011.9	1,015.6	+1.4	63.9	+.6	87	12	73	44	5	55	28	91	56	78	4.28	+1.5	1.55	9	6.7	sw.	20	se.	13	7	14	9	5.9	.0	.0	4
MIDDLE ATLANTIC																																		
							69.7	−1.2										74	4.12	+.5										6.2			
Albany [1]	97	26	40	1,010.5	1,014.6	+1.1	64.8	−1.9	94	11	77	36	4	52	37	81	56	74	4.15	+1.1	1.34	11	7.8	s.	26	w.	12	2	16	12	6.8	.0	.0	9
New York	314	415	454	1,004.4	1,015.6	+1.4	67.4	−1.4	87	28	75	52	9	60	26	34	56	72	3.29	−.1	1.08	9	12.2	s.	36	w.	6	6	12	12	6.2	.0	.0	5
Philadelphia [1]	114	5	57	1,011.5	1,015.6	+1.0	69.8	−1.6	93	11	78	52	5	61	27	15	60	75	4.70	+1.5	1.38	10	7.8	s.	22	sw.	2	7	14	9	5.9	.0	.0	7
Reading	323	47	306	1,003.7	1,015.2	+.6	69.3	−1.0	94	11	80	49	5	59	30	20	---	---	4.03	+.5	1.94	10	9.5	s.	43	e.	7	8	10	12	6.0	.0	.0	6
Scranton	805	72	104	986.8	1,015.6	+1.0	66.5	−1.3	95	11	77	44	4	56	34	51	---	---	1.85	−1.8	.59	12	6.0	n.	19	n.	3	6	16	8	5.9	.0	.0	3
Atlantic City	52	37	172	1,013.9	1,015.9	+1.3	66.0	−.6	90	12	72	52	5	60	23	45	59	82	1.77	−1.3	.90	7	14.3	s.	34	s.	14	7	11	12	6.1	.0	.0	3
Trenton	190	89	107	1,008.8	1,015.6	+1.4	68.6	−.9	93	11	78	49	5	59	32	30	---	---	3.29	+.2	1.07	10	8.2	s.	30	s.	14	4	16	10	6.3	.0	.0	7
Baltimore [2]	123	100	215	1,010.8	1,015.2	+.6	71.6	−1.1	93	11	80	54	4	63	28	5	60	72	7.48	+3.6	3.23	12	9.9	sw.	20	n.	8	3	16	11	6.2	.0	.0	9
Washington [2]	112	56	100	1,011.5	1,015.6	+1.0	72.6	+.4	96	11	82	50	5	63	33	2	---	68	5.76	+1.6	2.25	11	6.6	s.	36	n.	6	3	13	14	7.0	.0	.0	8
Cape Henry	18	8	54	1,014.9	1,015.6	+.7	72.4	−.5	93	8	79	52	1	66	29	5	64	77	4.77	+.8	1.42	8	10.1	s.	33	n.	8	6	15	9	5.8	.0	.0	5
Lynchburg [1]	686	4	50	991.2	1,015.6	+.4	70.8	−2.3	96	11	82	49	1	60	30	13	62	75	4.15	+.4	2.48	8	7.7	sw.	34	se.	28	7	9	14	6.3	.0	.0	9
Norfolk [2]	91	80	125	1,012.5	1,015.9	+.3	73.7	−.7	97	11	82	56	5	65	29	4	63	75	3.89	−.3	1.28	9	9.0	s.	21	s.	14	6	10	14	6.5	.0	.0	5
Richmond [2]	144	11	52	1,009.8	1,014.9	−.3	72.9	−1.2	97	11	83	50	5	63	32	4	62	75	4.49	+.6	1.98	12	6.5	s.	24	sw.	14	5	15	10	6.2	.0	.0	9
SOUTH ATLANTIC																																		
							76.1	−.1										76	5.61	+1.1										6.0			
Asheville	2,253	77	92	938.4	1,015.6	−.3	70.1	+1.4	93	10	81	47	23	59	31	18	59	76	3.50	−.4	1.23	16	6.7	nw.	24	nw.	28	3	14	13	6.4	.0	.0	1
Charlotte [2]	779	63	88	988.2	1,015.6	.0	76.1	+.6	99	10	86	53	23	66	27	0	62	70	3.17	−1.0	1.43	1	16.7	s.	22	s.	10	6	12	12	6.3	.0	.0	5
Greensboro [1]	886	6	56	984.8	1,015.9	+.3	73.5	−.5	97	10	84	51	23	62	32	2	62	73	2.24	−2.6	.74	9	7.7	sw.	21	n.	30	5	14	11	6.3	.0	.0	9
Hatteras	11	5	50	1,015.2	1,015.6	.0	74.3	−1.3	84	13	79	61	1	70	14	0	68	84	4.62	+.1	3.41	7	11.9	sw.	24	ne.	4	2	12	16	7.1	.0	.0	3
Raleigh [2]	376	5	69	1,002.0	1,015.6	+.4	75.2	−.5	99	11	86	51	23	64	32	0	64	76	4.67	+.3	2.60	6	6.8	sw.	17	se.	10	4	19	7	5.8	.0	.0	3
Wilmington [2]	72	73	107	1,013.2	1,015.6	−.3	76.1	−.7	94	30	84	56	23	68	24	0	68	79	6.13	+1.0	2.17	9	8.9	s.	35	nw.	30	8	16	6	5.2	.0	.0	8
Charleston [2]	48	11	92	1,013.9	1,015.6	−.3	77.9	−1.0	98	9	85	60	23	71	24	0	68	82	10.76	+6.2	3.08	14	10.1	s.	33	ne.	20	7	12	11	5.9	.0	.0	8
Columbia, S. C. [2]	347	70	91	1,002.7	1,014.9	−.7	78.2	+.1	101	9	89	55	23	68	30	1	66	70	3.73	−.4	1.55	12	7.5	s.	30	s.	27	12	10	8	4.9	.0	.0	8
Greenville, S. C. [1]	1,040	18	36	979.0	1,015.2	.0	75.2	+1.1	98	10	85	54	23	65	27	6	62	69	3.77	−.8	1.97	10	8.3	ne.	34	ne.	19	6	10	14	6.5	.0	.0	7
Augusta [2]	182	62	77	1,008.8	1,014.9	−.3	78.4	−.3	99	9	88	56	24	69	29	1	64	70	3.96	−.7	2.36	11	5.5	s.	20	sw.	20	7	12	11	5.1	.0	.0	7
Savannah [1]	65	73	152	1,013.2	1,015.2	−.7	78.3	+.1	100	9	87	59	24	69	29	0	70	82	11.74	+6.4	6.00	15	9.2	se.	33	ne.	22	5	15	10	6.4	.0	.0	10
Jacksonville [2]	43	86	110	1,013.9	1,015.6	−.7	79.6	−.3	95	9	87	63	24	72	24	0	70	80	9.02	+3.7	3.36	16	7.6	sw.	22	ne.	21	6	10	14	6.4	.0	.0	9
FLORIDA PENINSULA																																		
							81.0	+4										79	6.54	+.3										6.3			
Key West [2]	21	10	64	1,013.9	1,014.6	−.3	82.9	+1.0	91	26	88	73	10	78	14	0	74	77	4.31	+.1	1.03	15	7.1	e.	25	sw.	17	2	22	6	5.4	.0	.0	9
Miami [2]	25	242	249	1,014.2	1,015.2	−.7	79.5	−.5	89	16	84	68	1	75	15	0	72	80	9.16	+2.0	3.66	17	10.3	se.	30	se.	10	0	16	14	7.0	.0	.0	12
Tampa [1]	35	6	43	1,013.9	1,015.2	−.7	80.8	+.6	93	29	89	68	8	72	24	0	72	80	6.15	−1.1	2.13	15	6.8	e.	31	s.	13	3	15	12	6.5	.0	.0	13
EAST GULF																																		
							78.8	−.1										77	3.88	−.8										6.0			
Macon [2]	370	79	87	1,002.0	1,014.9	−1.0	77.8	−1.1	97	9	88	53	24	68	32	1	65	70	3.26	−.8	1.89	9	5.9	s.	18	s.	13	5	14	11	6.3	.0	.0	8
Thomasville	273	49	58	1,006.1	1,015.9	+.3	78.6	−.9	95	9	88	59	24	69	26	0	---	---	3.71	−1.7	.75	10	---	---	---	---	---	4	17	9	---	.0	.0	10
Apalachicola	35	11	51	1,013.9	1,014.9	−1.0	79.6	−.2	92	30	86	66	23	73	18	0	72	81	3.59	−2.0	1.38	11	6.5	w.	20	ne.	22	6	13	11	6.0	.0	.0	12
Pensacola [2]	56	54	79	1,013.2	1,014.9	−1.0	80.1	+.8	93	30	87	66	23	73	19	0	71	78	4.87	+.2	2.00	10	6.5	w.	18	ne.	22	6	15	9	5.7	.0	.0	11
Anniston	741	9	---	---	---	---	76.0	−.6	94	10	87	54	15	63	33	3	66	74	3.67	−.4	2.07	11	---	---	---	---	---	---	---	---	---	.0	.0	---
Birmingham [1]	700	5	62	990.5	1,014.9	−.7	75.6	−1.2	94	30	86	53	15	65	32	1	65	74	4.54	+.1	2.40	10	7.0	e.	34	nw.	26	2	17	11	6.5	.0	.0	8
Mobile [2]	57	86	161	1,012.9	1,014.9	−2.0	80.9	+.6	95	30	89	66	23	73	20	0	72	82	4.55	−.9	2.32	11	7.2	s.	26	sw.	19	4	18	8	6.1	.0	.0	11
Montgomery [2]	218	92	105	1,007.1	1,014.9	−.7	78.6	−1.0	96	9	88	60	23	69	25	0	68	76	3.12	−.7	1.08	11	6.1	s.	23	se.	11	6	15	9	5.6	.0	.0	7
Meridian [2]	375	67	92	1,001.7	1,014.6	−1.3	78.2	+.1	94	9	88	56	15	68	29	0	68	79	2.21	−2.3	1.19	7	5.3	sw.	24	sw.	2	14	8	8	5.0	.0	.0	5
Vicksburg [2]	247	82	102	1,005.1	1,014.2	−1.0	79.3	+.3	93	12	88	61	15	70	24	0	70	80	2.14	−1.8	1.38	8	7.8	s.	23	w.	25	7	14	9	6.0	.0	.0	8
New Orleans	53	76	84	1,012.5	1,014.6	−.6	82.6	+2.0	95	29	90	72	18	75	20	0	72	75	7.01	+1.1	2.07	10	5.4	se.	17	s.	18	0	16	14	6.8	.0	.0	10
WEST GULF																																		
							81.5	+1.3										74	2.56	−1.0										5.5			
Shreveport [1]	249	5	64	1,004.1	1,012.9	−1.7	81.0	+.6	97	29	92	57	16	70	30	0	68	71	2.02	−1.5	.91	5	9.9	s.	33	sw.	21	6	14	10	5.7	.0	.0	5
Fort Smith [1]	463	57	82	994.9	1,010.8	−1.4	78.0	+.5	97	29	89	53	14	67	30	0	66	71	2.73	−1.0	1.07	6	7.2	sw.	34	nw.	1	7	11	12	6.1	.0	.0	7
Little Rock [1]	357	5	58	1,000.3	1,012.9	−1.3	77.8	+.4	94	30	87	56	14	68	26	0	70	79	4.95	+1.2	2.72	7	8.2	sw.	33	nw.	26	7	14	9	6.3	.0	.0	4
Austin [1]	605	10	41	990.2	1,011.5	−1.4	82.7	+1.5	98	28	92	66	16	73	27	0	69	70	.11	−2.3	.10	2	11.6	s.	27	e.	23	5	19	6	5.5	.0	.0	2
Brownsville [1]	57	5	54	1,008.1	1,010.2	−1.7	84.7	+2.3	96	19	93	72	8	77	22	0	75	80	.14	−3.0	.10	2	13.6	se.	27	se.	27	2	25	3	5.5	.0	.0	2
Corpus Christi [1]	20	4	33	1,010.8	1,011.5	−1.4	82.6	+3.1	92	30	90	70	15	75	19	0	74	82	1.83	−.8	1.28	5	13.4	se.	29	se.	1	7	18	5	5.4	.0	.0	3
Dallas [1]	512	5	45	992.9	1,011.2	−1.7	81.4	+1.0	98	30	92	53	14	71	32	0	66	66	4.28	+.4	2.42	6	14.2	s.	34	s.	10	14	11	5	4.6	.0	.0	5
Fort Worth [1]	679	5	56	987.1	1,010.8	−2.1	81.0	+1.1	98	28	92	54	14	70	28	0	66	66	4.08	+.7	2.24	4	14.4	s.	35	w.	20	16	8	6	4.3	.0	.0	6
Galveston [2]	54	106	114	1,011.2	1,013.2	−1.4	82.2	+1.5	90	13	86	72	14	79	12	0	74	79	.60	−3.8	.59	2	13.6	s.	29	s.	21	9	16	5	4.8	.0	.0	2
Houston [2]	138	157	190	1,007.8	1,012.5	−1.4	81.8	+.4	94	13	90	68	14	74	21	0	73	81	5.04	+.5	2.25	8	10.3	se.	31	se.	18	2	21	7	6.1	.0	.0	6
Palestine	510	64	72	994.9	1,012.5	−1.4	79.5	+.5	92	12	88	59	14	71	27	0	68	72	3.39	−.2	2.45	4	8.1	s.	20	se.	20	4	20	6	5.7	.0	.0	4
Port Arthur [2]	34	59	134	1,011.9	1,013.2	−1.0	82.6	+1.6	94	13	88	69	17	77	21	0	70	79	3.77	−1.0	2.21	9	12.8	s.	30	s.	18	12	9	9	5.1	.0	.0	5
San Antonio [1]	693	6	51	987.1	1,010.8	−1.7	83.9	+2.9	101	28	94	65	17	74	30	0	70	69	.31	−2.2	.28	3	10.9	se.	26	se.	28	3	18	9	6.2	.0	.0	2
OHIO VALLEY AND TENNESSEE																																		
							71.4	−.4										75	4.60	+.6										6.9			
Chattanooga [1]	762	6	66	988.2	1,015.2	.0	74.5	+1.3	96	9	86	52	15	63	35	2	64	76	4.63	+.5	1.81	12	6.4	s.	44	w.	27	3	13	14	6.8	.0	.0	8
Knoxville [1]	995	27	53	980.4	1,015.2	.0	74.3	+.5	96	10	85	52	1	63	32	3	64	72	2.68	−1.4	.83	12	7.7	sw.	38	w.	27	1	17	12	7.0	.0	.0	9
Memphis [4]	399	5	86	999.3	1,013.2	−1.4	78.2	+1.8	98	12	88	56	4	68	30	0	67	72	5.49	+1.9	3.84	7	7.9	sw.	23	sw.	26	5	15	10	6.1	.0	.0	7
Nashville [1]	546	5	72	994.9	1,014.6	−1.0	75.8	+.2	98	12	86	54	17	66	32	3	64	72	2.44	−1.6	1.37	7	8.7	s.	38	nw.	27	4	15	11	6.3	.0	.0	5
Lexington [1]	989	6	---	979.3	1,014.6	−1.3	70.4	−1.8	90	29	80	46	4	61	32	23	62	80	5.15	+1.1	1.39	13	---	s.	---	---	---	4	12	14	6.9	.0	.0	8
Louisville [1]	525	106	120	994.9	1,013.9	−1.3	72.5	−1.0	91	30	82	51	4	63	31	3	62	74	4.03	+.2	1.49	10	7.3	s.	22	sw.	2	2	16	13	7.4	.0	.0	10
Evansville [1]	431	12	40	998.0	1,013.5	−1.4	72.1	+.2	91	30	81	51	16	63	28	5	64	79	5.26	+1.2	1.56	12	8.8	s.	33	nw.	30	2	8	20	7.7	.0	.0	9
Indianapolis [1]	823	5	54	983.7	1,012.9	−1.7	68.0	−1.9	90	30	77	46	3	59	30	41	60	76	5.67	-----	2.62	10	9.7	sw.	34	sw.	30	4	7	19	7.2	.0	.0	8
Terre Haute [2]	575	68	149	993.2	1,013.9	+1.0	69.6	−2.4	91	28	79	42	3	60	32	26	62	78	4.90	+1.0	1.25	13	9.7	s.	34	s.	10	3	11	16	7.1	.0	.0	8

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JUNE 1947—Continued

District and station	Elevation of instruments: Barometer above sea level	Thermometer above ground	Anemometer above ground	Pressure: Station	Sea level	Departure from normal	Temperature of the air: Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Wind: Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Direction	Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
OHIO VALLEY AND TENNESSEE—Con.	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F*		°*F*	°*F.*		°*F.*	°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
Cincinnati [2]	627	11	51	991.9	1,014.9	.0	72.8	+1.6	94	10	83	53	4	63	28	5	60	76	3.66	.0	1.44	11	4.3	se.	14	nw.	15	3	13	14	6.8	.0	.0	9
Columbus [2]	822	90	110	985.4	1,014.2	−.7	70.4	−.5	92	29	80	45	4	61	33	23	60	75	4.14	+.8	1.52	14	9.1	s.	32	sw.	8	5	14	11	6.1	.0	.0	5
Dayton [1]	1,003	6	55	978.7	1,014.6	+.4	68.2	−2.7	89	10	78	47	4	59	27	41	58	76	6.95	+3.2	2.95	11	10.2	s.	34	s.	27	3	11	16	6.9	.0	.0	8
Elkins [1]	1,947	61	78	947.9	1,015.9	+.3	65.0	−.6	88	11	77	38	1	53	45	78	58	82	7.14	+2.1	4.20	11	8.7	se.	60	w.	7	4	10	16	7.1	.0	.0	7
Parkersburg	637	77	84	991.9	1,014.6	−1.0	71.2	−.2	94	10	82	49	17	60	36	14	59	68	2.80	−1.2	1.05	7	5.7	sw.	26	nw.	7	4	13	13	6.6	.0	.0	5
Pittsburgh [1]	842	39	54	984.8	1,014.9	.0	68.5	−.1	91	10	79	45	4	58	32	36	57	72	4.04	+.2	1.59	12	9.1	sw.	26	sw.	11	5	9	16	6.6	.0	.0	5
LOWER LAKES																																		
							65.7	−.1										73	4.57	+1.2											5.9			
Buffalo [1]	768	34	96	986.8	1,014.2	.0	65.8	+.9	90	10	77	41	4	55	38	76	56	74	4.01	+1.2	1.38	10	11.6	sw.	32	sw.	15	7	16	7	5.8	.0	.0	2
Canton	448	10	61	997.6	1,013.5	+.6	64.0	+.5	91	11	74	37	4	54	38	108	54	72	5.43	+2.1	2.08	14	7.3	w.	27	w.	1	4	13	13	6.9	.0	.0	8
Oswego	335	71	85	1,001.7	1,013.9	+.3	62.4	−.5	94	11	71	41	4	54	39	145	54	76	4.21	+1.0	1.78	13	7.5	w.	24	n.	3	13	10	7	4.9	.0	.0	1
Rochester [1]	523	5	69	995.3	1,014.2	.0	66.2	+1.1	94	10	77	43	4	55	36	80	56	72	4.08	+1.1	2.00	11	8.4	sw.	33	sw.	11	8	11	11	5.9	.0	.0	3
Syracuse [1]	596	5	57	992.9	1,014.6	+.4	65.6	+1.1	95	11	77	39	4	54	40	83	56	72	3.94	+.1	1.78	13	8.6	sw.	29	sw.	5	6	10	14	6.5	.0	.8	6
Erie [1]	714	57	81	988.8	1,014.6	+.4	66.4	+.2	92	10	74	44	4	58	28	73	57	76	2.78	−.6	1.25	10	7.3	w.	22	sw.	11	10	14	6	5.1	.0	.0	7
Cleveland [1]	762	27	54	987.1	1,014.6	.0	67.0	−.7	91	10	78	40	4	57	37	66	56	70	6.07	+3.0	2.36	14	9.1	s.	31	w.	29	7	10	13	6.0	.0	.0	7
Sandusky	629	5	67	991.5	1,014.6	−.6	67.0	−1.8	92	10	76	42	4	58	27	66	----	----	5.30	+1.8	1.43	11	8.0	sw.	23	w.	29	11	11	8	4.7	.0	.0	6
Toledo [1]	628	5	47	991.5	1,014.2	−.4	66.2	−1.0	90	10	76	40	4	56	33	78	56	73	5.37	+2.0	1.37	11	9.8	sw.	31	sw.	27	8	8	14	6.1	.0	.0	7
Fort Wayne [1]	857	5	33	983.1	1,013.9	−.7	66.2	−1.2	89	10	76	42	3	56	37	77	57	74	5.59	+2.0	1.91	11	8.5	s.	38	sw.	27	4	10	16	6.7	.0	.0	9
Detroit [1]	730	5	78	988.2	1,014.6	.0	66.0	−.2	90	10	76	39	4	56	31	87	55	69	3.49	−.1	1.32	11	8.9	s.	34	nw.	29	8	9	13	6.0	.0	.0	3
UPPER LAKES																																		
							60.3	−2.1										73	3.17	−.2										6.4			
Alpena	609	5	89	991.5	1,013.9	−.3	59.3	−1.1	88	28	69	40	4	50	33	206	50	73	1.58	−1.7	.61	10	9.0	se.	28	s.	10	8	11	11	5.7	.0	.0	8
Escanaba	612	51	72	990.9	1,012.9	−.6	57.8	−2.9	76	28	66	37	12	50	28	227	48	72	2.97	−.2	2.14	9	10.6	s.	28	n.	1	7	9	14	6.1	.0	.0	7
Grand Rapids [1]	707	70	244	988.2	1,013.5	−.4	65.6	−2.2	92	10	76	43	3	56	36	93	54	72	2.69	−.8	1.01	11	11.0	sw.	38	s.	10	6	12	12	6.3	.0	.0	5
Lansing [2]	878	5	90	982.4	1,013.9	.0	63.6	−2.8	87	10	74	40	3	54	27	120	54	70	2.74	−.8	.87	11	7.4	sw.	26	sw.	10	5	11	14	6.5	.0	.0	4
Marquette	734	44	73	981.0	1,013.2	−.7	56.2	−2.7	94	28	66	36	12	47	37	296	48	76	3.50	+.3	.76	10	7.8	n.	30	s.	4	7	9	14	6.3	.0	.0	6
Sault Sainte Marie [1]	614	11	52	990.5	1,013.5	−.4	56.7	−.8	87	10	68	34	12	45	34	269	48	75	2.64	−.1	1.08	12	9.8	w.	29	nw.	11	9	6	15	6.2	.0	.0	8
Chicago [1]	673	5	36	988.8	1,012.9	−1.3	66.0	−2.1	96	28	76	43	3	56	37	93	56	73	4.40	+.9	1.62	11	9.5	s.	35	n.	29	3	11	16	6.7	.0	.0	5
Green Bay	617	5	32	990.2	1,012.9	−.3	61.4	−3.5	90	28	71	41	16	52	29	160	51	68	3.10	−.6	1.12	11	8.4	se.	26	s.	29	4	12	14	6.5	.0	.0	7
Milwaukee [1]	681	33	66	988.5	1,013.2	−.7	60.8	−1.3	88	28	70	42	3	52	35	189	52	76	3.98	+.6	1.26	14	12.7	se.	39	sw.	28	3	12	15	6.9	.0	.0	8
Duluth [2]	1,133	5	47	971.2	1,012.2	−1.0	55.4	−1.8	84	28	64	38	2	47	32	301	47	72	4.14	+.2	1.25	13	10.1	ne.	34	ne.	10	6	12	12	6.3	.0	.0	5
NORTH DAKOTA																																		
							60.6	−2.2										73	5.20	+1.3										7.3			
Fargo [1]	940	6	47	976.0	1,009.8	−2.4	61.4	−3.0	86	26	71	37	2	51	29	134	52	74	3.23	−.8	1.00	14	12.5	se.	49	se.	8	3	7	20	7.0	T	.0	4
Bismarck [1]	1,677	5	43	950.2	1,009.5	−2.7	61.8	−1.1	85	3	72	39	11	51	38	118	51	74	8.29	+4.9	3.25	18	11.9	se.	45	nw.	23	1	9	20	7.7	.0	.0	10
Devils Lake	1,478	11	44	957.7	1,010.8	−1.1	59.8	−2.1	78	13	70	32	1	49	35	166	49	74	3.08	−.5	1.18	14	8.9	se.	32	n.	10	4	9	17	7.1	.0	.0	4
Grand Forks [1]	832	4	41	980.0	1,010.2	−2.7	60.0	----	82	26	70	36	1	50	32	164	52	74	6.38	----	2.36	13	----	se.	----	----	----	3	7	20	----	.0	.0	7
Williston	1,878	42	50	943.4	1,009.8	−1.7	59.9	−2.8	82	25	70	34	11	50	34	162	48	71	5.03	+1.6	1.75	14	7.7	se.	27	ne.	21	4	9	17	7.3	.0	.0	5
UPPER MISSISSIPPI																																		
							67.5	−2.4										75	8.18	+4.0										6.9			
Minneapolis-St. Paul [1]	919	43	74	977.7	1,010.5	−1.7	64.6	−2.9	91	27	74	42	2	55	31	98	52	69	5.30	+1.1	1.22	12	12.3	se.	50	sw.	28	3	10	17	7.0	.0	.0	10
La Crosse [1]	714	5	20	985.4	1,011.2	−1.3	64.2	−2.8	90	28	74	42	12	54	31	99	54	72	8.02	+4.0	2.36	12	9.7	se.	38	nw.	28	4	12	14	6.8	.0	.0	8
Madison [2]	974	70	78	981.4	1,012.5	----	63.8	−3.4	91	28	75	44	3	53	32	121	55	74	6.45	+2.7	3.20	14	11.0	s.	52	nw.	28	2	10	18	7.4	.0	.0	9
Charles City	1,015	10	51	975.6	1,011.9	−1.3	64.8	−1.7	93	28	74	43	14	55	29	96	----	----	11.36	+6.7	4.01	15	7.1	e.	28	s.	4	7	12	11	6.0	.0	.0	8
Moline [1]	608	6	50	990.2	1,012.5	−1.0	67.4	−1.9	94	28	76	44	3	58	28	59	58	74	5.99	+1.9	1.22	15	10.3	e.	34	sw.	10	2	11	17	7.1	.0	.0	12
Des Moines [2]	860	5	99	----	1,011.5	----	67.6	−3.0	92	28	76	46	12	59	24	61	60	80	14.17	+9.4	5.37	11	10.3	se.	36	se.	22	8	13	9	7.1	.0	.0	17
Dubuque	699	60	79	986.8	1,011.5	−2.0	66.2	−3.2	92	28	76	46	12	57	29	83	57	74	10.45	+6.1	3.89	15	6.2	se.	32	nw.	28	4	11	15	6.8	.0	.0	10
Burlington [1]	702	4	36	986.8	1,011.9	−2.0	68.0	−3.5	94	28	78	46	3	58	30	51	60	80	9.88	+5.2	1.76	17	10.2	s.	34	sw.	10	5	9	16	6.7	.0	.0	16
Cairo	357	5	99	1,000.3	1,012.9	−1.3	76.6	−.7	95	30	85	58	3	68	26	0	----	----	4.37	+.5	1.06	10	8.3	sw.	43	sw.	1	5	5	20	7.1	.0	.0	6
Peoria [1]	609	6	26	990.9	1,012.5	−1.7	68.0	−1.9	94	28	77	43	3	59	28	48	60	76	7.13	+3.4	1.73	12	10.0	s.	34	w.	30	2	13	15	7.2	.0	.0	10
Springfield, Ill. [2]	636	5	191	989.8	1,011.9	−1.6	71.2	−1.0	94	28	80	48	3	62	27	17	61	79	6.86	+2.8	1.19	14	11.7	s.	34	sw.	1	7	9	14	6.4	.0	.0	12
MISSOURI VALLEY																																		
							69.5	−1.4										76	7.68	+3.4										6.5			
Columbia, Mo [2]	784	6	66	983.7	1,011.5	−1.7	72.8	−.6	91	28	82	51	14	64	29	7	63	78	7.02	+2.3	1.16	18	7.3	s.	30	w.	30	10	10	10	5.3	.0	.0	20
Kansas City [1]	963	39	76	938.4	1,009.8	----	73.4	−.2	94	28	83	52	13	64	32	11	63	72	8.19	+3.5	2.23	11	11.1	s.	37	w.	4	5	11	14	6.6	.0	.0	12
St. Joseph [2]	967	11	49	----	----	----	71.6	−2.1	92	28	81	49	14	62	31	15	64	80	11.43	+6.5	3.38	14	9.3	s.	45	w.	4	10	8	12	5.7	.0	.0	15
Springfield, Mo. [1]	1,324	5	67	967.2	1,011.9	----	73.1	+1.4	93	30	83	50	14	64	27	12	64	78	6.75	+2.1	1.44	14	12.5	s.	56	n.	27	2	12	16	7.1	.0	.0	15
Topeka [2]	987	65	87	974.9	1,010.2	−2.3	72.8	−.6	94	17	83	51	13	62	32	14	64	80	5.25	+.6	1.33	12	9.4	s.	28	sw.	9	7	8	15	6.7	.0	.0	12
Lincoln [2]	1,189	11	81	967.5	1,009.5	−1.3	68.8	−2.6	92	28	78	49	13	60	29	43	60	78	9.95	+5.6	2.69	15	9.4	se.	38	nw.	9	5	11	14	6.6	.0	.0	11
Omaha [1]	1,105	5	68	971.2	1,010.2	−2.3	69.1	−1.6	94	28	78	48	12	60	31	45	60	76	10.81	+6.2	3.33	16	11.5	s.	42	nw.	28	4	12	14	6.8	.0	.0	14
Valentine	2,598	46	54	920.1	1,010.8	−1.7	63.3	−3.6	92	27	74	38	11	52	36	109	50	70	6.81	+3.9	1.52	19	9.8	w.	39	sw.	2	6	11	13	6.3	.0	.0	12
Sioux City [1]	1,138	5	40	----	1,010.2	----	66.5	−2.3	96	27	77	43	11	56	28	71	58	76	5.84	+1.8	1.84	18	11.0	se.	59	sw.	9	5	10	15	7.0	.0	.0	11
Huron [1]	1,301	5	41	963.8	1,010.2	−2.3	63.9	−2.3	89	26	74	40	11	53	31	81	55	76	4.74	+1.0	1.37	14	13.2	se.	43	se.	8	6	10	14	6.7	.0	.0	11
NORTHERN SLOPE																																		
							58.4	−3.6										68	4.33	+2.2										6.9			
Billings [1]	3,570	16	40	888.6	1,010.8	−2.1	59.4	−5.5	87	19	70	42	29	48	33	179	48	70	3.84	----	1.58	14	9.2	sw.	42	nw.	26	4	12	14	7.0	.0	.0	8
Havre	2,507	11	67	923.1	1,011.2	−1.0	60.4	−1.6	83	13	71	40	29	50	35	146	44	62	2.95	+.1	.69	15	7.6	sw.	42	w.	13	1	4	25	8.1	.0	.0	10
Helena [1]	4,124	5	43	871.7	1,013.2	+.3	55.9	−3.3	80	25	67	38	29	45	36	272	43	68	4.34	+2.3	1.70	15	8.2	w.	41	w.	13	3	11	16	7.2	.0	.0	12
Missoula [1]	3,205	4	32	900.4	1,013.9	−.3	56.3	−3.3	82	24	68	34	28	45	42	261	42	68	1.92	−.1	.66	16	6.3	nw.	34	nw.	27	4	6	20	7.2	.0	.0	3
Kalispell	2,973	48	56	909.6	1,011.9	−1.0	55.6	−2.1	78	24	65	40	21	47	29	283	45	72	4.56	+2.5	1.54	17	5.3	w.	26	sw.	13	2	10	18	7.6	.0	.0	5
Miles City [1]	2,371	5	78	927.5	1,010.8	−1.7	61.4	----	88	19	72	41	11	50	34	129	48	68	3.87	----	1.40	13	----	nw.	----	----	----	3	12	15	7.1	.0	.0	8
Rapid City [1]	3,259	5	63	898.1	1,010.5	−2.4	59.2	−5.0	94	8	71	33	13	48	43	194	49	75	5.68	+2.6	2.67	14	13.5	nw.	47	nw.	22	6	9	15	6.7	.0	.0	13
Cheyenne [1]	6,094	5	40	811.7	1,010.2	−1.3	56.4	−4.0	83	16	69	28	12	44	35	264	41	66	3.75	+2.1	1.91	12	11.1	nw.	40	nw.	9	6	12	12	6.2	8.7	.0	11
Lander [1]	5,352	60	68	833.4	1,011.9	−.4	55.6	−4.9	83	16	68	32	12	43	36	283	39	60	6.88	+5.7	3.56	14	7.5	sw.	43	sw.	2	6	10	14	6.4	18.4	.0	7
Sheridan [1]	3,790	5	38	881.5	1,011.5	−1.0	57.8	−3.7	88	19	70	35	13	46	40	220	45	68	5.02	+3.0	2.30	12	8.7	nw.	47	nw.	19	4	11	15	6.7	.0	.0	9
North Platte [2]	2,821	11	51	912.6	1,009.5	−2.7	64.6	−2.9	91	27	75	42	11	54	36	84	54	76	4.87	+1.6	1.64	14	7.3	se.	25	nw.	9	5	13	12	6.2	.0	.0	13
MIDDLE SLOPE																																		
							71.1	−1.4										68	3.93	+.7										5.2			
Denver [1]	5,292	106	113	835.8	1,009.8	−1.7	62.6	−3.7	91	8	74	33	12	51	33	130	43	60	2.34	+1.0	1.34	7	7.7	s.	33	nw.	9	7	15	8	5.4	T	.0	5
Pueblo [1]	4,690	5	36	854.0	1,009.1	−1.4	65.7	−2.9	96	8	80	38	13	51	40	67	46	60	3.43	+2.1	1.85	8	7.7	se.	35	sw.	3	14	9	7	4.5	.0	.0	6
Concordia	1,392	50	58	960.7	1,009.5	−2.7	69.8	−3.2	98	28	80	48	13	60	28	37	60	73	8.58	+4.2	3.11	13	8.1	se.	28	w.	26	9	10	11	5.7	.0	.0	13
Dodge City [1]	2,509	5	58	922.8	1,008.5	−3.4	71.0	−1.5	102	28	84	41	13	58	41	32	58	70	3.53	+.2	1.74	81	5.1	se.	65	se.	3	9	12	9	5.0	.0	.0	10

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JUNE 1947—Continued

District and station	Elevation of instruments: Barometer above sea level	Thermometer above ground	Anemometer above ground	Pressure: Station	Sea level	Departure from normal	Temperature of the air: Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Wind: Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Direction	Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
MIDDLE SLOPE—Con.	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F		°F	°F		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0–10	In.	In.	
Wichita [1]	1,358	6	64	961.7	1,009.1	—2.8	74.0	—.4	97	28	85	49	13	63	31	13	62	70	2.57	—1.8	.78	13	14.9	se.	54	se.	4	7	14	9	5.4	.0	.0	14
Oklahoma City [1]	1,214	10	47	967.2	1,009.1	—3.1	78.0	+2.0	98	27	88	51	14	68	29	3	66	72	2.07	—1.6	1.19	9	10.7	s.	24	s.	9	17	6	7	4.2	.0	.0	9
Tulsa [1]	674	10	60	986.5	1,010.2	.....	76.6	+.1	94	30	86	52	14	67	29	3	66	74	5.01	+.6	1.89	8	12.2	s.	42	n.	26	4	18	8	6.0	.0	.0	10
SOUTHERN SLOPE							78.7	+1.5										57	2.02	—.5											4.6			
Abilene [1]	1,738	4	59	949.5	1,008.5	—2.7	81.9	+4.3	102	10	94	53	14	70	30	0	63	59	2.26	—.7	.98	6	17.3	s.	40	n.	12	9	16	5	4.6	.0	.0	7
Amarillo [1]	3,676	5	42	885.7	1,008.0	—3.5	73.2	+1.8	99	8	87	44	14	59	38	12	56	64	3.19	+.4	1.57	7	14.9	s.	40	nw.	3	12	13	5	4.5	.0	.0	6
Del Rio	960	63	71	976.0	1,008.5	—2.0	82.5	—.9	100	10	92	66	15	73	25	0	70	68	2.06	—.5	1.44	8	10.6	se.	24	se.	11	4	18	8	5.8	.0	.0	6
Roswell	3,566	75	85	888.9	1,007.8	—2.0	77.2	+.7	104	7	95	52	2	60	52	0	42	38	.56	—1.1	.30	3	10.1	s.	40	sw.	25	15	11	4	3.6	.0	.0	4
SOUTHERN PLATEAU							77.1	+.1										30	.14	—.2											2.8			
El Paso [1]	3,778	29	85	882.8	1,006.8	—1.0	79.4	+1.4	102	30	93	55	19	66	39	0	39	29	.53	.0	.49	3	11.6	sw.	47	n.	17	18	8	4	3.4	.0	.0	3
Albuquerque [1]	5,314	5	45	835.4	1,006.4	—1.4	72.8	+.2	96	30	88	46	22	58	38	9	32	28	.23	—.3	.18	2	9.9	nw.	47	nw.	17	18	9	3	3.6	.0	.0	4
Flagstaff	6,907	36	51	790.4	.....	.....	59.4	—.1	86	15	77	27	12	42	48	171	30	38	T	—.5	T	0	....	sw.	..	....	..	16	9	5	3.8	T	.0	0
Phoenix [2]	1,107	39	87	968.5	1,006.4	.....	84.6	+.1	107	16	99	63	22	70	35	0	43	26	.0	—.1	0	0	7.6	w.	26	sw.	20	24	5	1	2.2	.0	.0	0
Tucson [1]	2,555	5	39	921.8	1,007.5	.0	82.1	—.5	104	16	98	58	22	66	36	0	38	24	.05	—.2	.05	1	....	sw.	..	....	..	19	10	1	2.6	.0	.0	1
Yuma	142	9	54	1,001.7	1,006.4	—.4	84.4	—.3	111	16	101	60	1	68	41	0	46	34	.00	.0	.00	0	6.3	sw.	27	w.	21	27	3	0	1.2	.0	.0	0
MIDDLE PLATEAU							62.7	—2.2										43	1.00	+0.5											4.8			
Reno [1]	4,527	20	52	860.8	1,012.9	+1.0	60.3	—.8	93	15	78	31	4	42	50	156	35	50	.07	—.2	.06	2	9.1	n.	37	n.	20	19	4	7	3.7	.0	.0	2
Winnemucca	4,339	5	56	866.2	1,012.2	.0	61.4	—1.4	92	15	77	36	12	46	45	141	34	42	.28	—.4	.19	4	7.9	sw.	33	sw.	16	12	10	8	4.5	.0	.0	3
Modena	5,473	10	46	.....	1,008.1	.....	61.4	—1.9	90	15	78	34	12	44	44	133	34	29	.35	—.3	.34	3	10.9	sw.	35	sw.	20	16	11	3	3.6	.0	.0	2
Salt Lake City [1]	4,227	32	58	864.2	1,009.8	+.3	63.6	—2.1	92	16	76	40	11	51	38	98	44	54	2.93	+2.2	1.44	1	09.4	se.	34	nw.	1	10	9	11	5.5	.0	.0	4
Grand Junction [1]	4,602	60	68	849.3	1,009.5	.....	66.6	—4.8	94	16	81	38	13	53	38	73	38	41	1.38	+1.0	0.57		98.9	e.	34	s.	2	15	6	9	4.7	.0	.0	7
NORTHERN PLATEAU							61.4	—1.7										54	1.67	+.7											5.9			
Baker [2]	3,471	36	54	894.7	1,014.6	—.3	56.0	—2.6	84	18	68	34	29	44	40	267	42	66	1.72	+.4	.43	14	6.3	n.	27	sw.	8	10	8	12	5.8	.0	.0	6
Boise [1]	2,739	5	49	917.4	1,012.2	—.7	61.8	—2.7	90	25	74	39	29	50	38	127	40	53	.80	—.1	.51	9	11.2	nw.	35	nw.	11	8	12	10	5.6	.0	.0	4
Pocatello [1]	4,478	5	31	861.2	1,012.5	+1.0	59.2	—2.3	86	25	72	36	30	47	43	187	38	53	1.70	+.6	.93	10	10.4	sw.	43	sw.	25	8	7	15	6.1	.0	.0	5
Spokane [1]	1,929	27	42	944.5	1,012.5	—1.0	61.5	—1.3	88	24	73	40	21	50	39	129	43	58	1.98	+.7	.55	13	7.5	sw.	29	w.	25	2	11	17	7.2	.0	.0	1
Walla Walla	991	57	65	978.0	1,013.5	.....	66.0	—.5	92	24	76	50	29	55	34	41	44	43	2.08	+1.0	.95	11	6.1	s.	25	w.	26	10	7	13	5.5	.0	.0	4
Yakima [1]	1,076	58	67	974.6	1,013.2	—.7	64.1	—.9	93	24	78	40	28	50	44	70	44	54	1.74	+1.4	.78	5	....	nw.	..	.....	..	10	8	12	5.3	.0	.0	4
NORTH PACIFIC COAST							60.0	+.2										74	2.84	+1.2											6.7			
North Head	211	5	55	1,009.1	1,016.6	—1.4	57.2	+2.4	73	6	62	49	27	53	20	235	52	82	3.88	+1.6	1.11	19	14.6	nw.	45	n.	20	2	11	17	7.3	.0	.0	0
Seattle [2]	125	90	321	1,011.9	1,016.3	—.6	61.6	+.2	82	24	70	50	21	54	27	109	48	71	2.28	+1.0	.49	15	8.2	w.	33	sw.	8	5	6	19	7.1	.0	.0	2
Tacoma	194	172	201	1,009.1	1,015.9	—1.4	60.2	+1.5	79	24	68	47	11	52	23	144	....	....	2.05	+.6	.61	14	8.3	n.	27	sw.	26	7	10	13	6.2	.0	.0	2
Tatoosh Island	86	9	61	1,013.5	1,016.6	—1.0	56.0	+3.0	63	6	60	49	20	52	13	272	51	86	2.72	—.5	.85	16	10.3	w.	32	e.	7	1	11	18	7.4	.0	.0	0
Medford [1]	1,329	29	58	968.5	1,015.9	+1.0	61.7	—4.1	93	24	75	39	11	48	44	123	46	64	2.26	+1.5	1.04	10	....	n.	..	.....	..	11	8	11	5.5	.0	.0	0
Portland, Oreg. [2]	154	68	106	1,011.2	1,016.6	.0	62.4	.0	85	24	71	47	11	54	26	96	50	72	2.95	+1.4	.76	16	5.6	nw.	17	s.	1	4	7	19	7.3	.0	.0	3
Roseburg	510	45	76	998.3	1,016.9	+.3	61.0	—1.5	88	24	72	40	11	50	39	133	48	68	3.76	+2.7	.83	16	4.5	n.	18	ne.	21	7	9	14	6.1	.0	.0	0
MIDDLE PACIFIC COAST							66.2	+2.2										62	.79	+.4											4.0			
Eureka	60	72	88	1,015.2	1,017.6	—.4	56.6	+2.3	70	7	61	46	21	52	16	254	50	82	1.58	+.9	.47	10	9.1	n.	29	n.	20	9	8	13	5.8	.0	.0	0
Red Bluff [1]	353	5	26	999.3	1,011.9	.....	74.4	+.4	103	24	87	54	2	62	38	6	42	40	.66	+.2	.40	5	10.5	nw.	34	nw.	19	19	4	7	3.6	.0	.0	2
Sacramento [2]	66	92	115	1,009.1	1,011.5	.0	72.0	+2.6	102	18	86	50	3	58	38	6	49	54	.28	+.1	.25	4	8.6	sw.	29	nw.	20	21	4	5	2.8	.0	.0	0
San Francisco [2]	155	112	132	1,008.1	1,013.9	.0	61.8	+3.3	87	22	69	50	30	55	32	117	50	74	.64	+.5	.29	6	10.7	w.	26	w.	26	16	7	7	3.8	.0	.0	0
SOUTH PACIFIC COAST							70.0	+1.0										63	.01	—.1											4.7			
Fresno [1]	327	5	34	999.0	1,010.2	—.6	76.4	+.7	106	19	92	54	3	60	39	0	46	41	.02	—.1	.02	1	8.4	nw.	27	nw.	20	20	6	4	3.2	.0	.0	0
Los Angeles	338	223	250	1,001.0	1,012.9	.0	66.9	+.5	82	13	76	54	4	58	25	6	56	74	.02	—.1	.02	1	6.0	w.	18	w.	6	12	9	9	5.0	.0	.0	0
San Diego [1]	87	20	55	1,009.8	1,013.2	+.3	66.7	+1.7	77	12	73	57	12	60	20	0	58	74	T	.0	T	0	7.9	nw.	17	sw.	10	7	15	8	5.8	.0	.0	0
PANAMA CANAL																																		
Balboa Heights	118	6	97	.....	.....	.....	79.8	—0.4	91	26	86	71	27	74	16	.....	75	89	6.06	—2.1	....	25	4.1	nw.	24	ne.	27	0	8	22	8.1	.0	.0	8
Cristobal	23	37	92	.....	.....	.....	80.1	—.9	89	9	84	72	17	76	13	.....	76	88	9.37	—4.2	....	24	5.5	s.	21	ne.	29	0	6	24	8.3	.0	.0	10
ALASKA																																		
Anchorage [1]	132	6	44	1,005.8	1,010.8	.....	53.4	—.1	75	8	64	33	15	43	37	350	40	65	.30	—.48	.10	9	6.3	s.	26	s.	14	1	10	19	7.6	0	0	0
Fairbanks [1]	455	5	63	992.2	1,009.1	.....	55.8	—2.6	84	9	69	31	1	43	37	275	39	60	.56	—.79	.06	12	7.1	sw.	27	sw.	29	4	13	13	6.5	0	0	3
Juneau [1]	80	6	30	1,010.2	1,013.6	.....	52.7	.....	81	8	61	36	6	44	39	370	43	74	4.77	.....	1.11	19	7.9	n.	24	se.	12	3	3	24	8.0	0	0	0
Nome	22	10	75	1,009.5	1,010.2	.....	50.6	+5.0	73	18	59	34	6	42	30	434	42	76	.46	—.22	.66	4	11.9	w.	34	w.	29	7	13	10	5.9	0	0	0
Barrow	20	5	27	1,016.3	1,017.3	.....	29.6	—4.8	41	24	33	21	2	26	11	1062	29	96	.11	—.2	.09	4	11.3	e.	25	ne.	1	1	6	23	8.6	T	0	0
Bethel	28	5	31	1,006.4	1,007.8	.....	53.0	.0	73	17	61	37	2	45	27	352	44	76	2.64	+1.5	.68	17	8.9	s.	40	.....	8	0	12	18	7.9	0	0	4
Cordova	45	5	32	1,010.5	1,012.2	.....	48.9	.....	76	8	57	32	6	41	42	481	44	84	4.69	.....	1.39	18	....	e.	28	e.	22	1	8	21	8.1	0	0	0
Gambell	32	5	32	1,010.5	1,011.5	.....	36.8	—1.3	48	30	41	29	6	33	14	846	34	90	.21	—.2	....	5	12.0	ne.	38	n.	1	2	6	22	8.0	0	0	0
Ketchikan	25	69	90	1,013.5	1,014.5	.....	54.1	—.6	79	2	60	43	15	48	31	326	47	80	9.39	—3.1	2.33	18	7.2	se.	23	se.	3	2	3	25	8.2	0	0	0
Kotzebue	20	5	31	1,010.2	1,010.8	.....	47.5	+3.8	69	20	53	35	1	42	25	525	41	82	.38	—.1	.19	6	13.6	w.	34	w.	12	8	11	11	5.7	0	0	0
McGrath	341	5	31	996.3	1,008.8	.....	54.7	—1.7	79	9	65	37	6	44	31	307	42	66	3.63	+1.6	1.31	15	....	s.	..	.....	..	1	9	20	7.9	0	0	0
Northway	1,718	5	32	947.5	1,010.2	.....	52.8	—3.5	80	9	64	30	1	42	40	367	39	66	2.65	+.5	....	10	6.7	w.	18	nw.	25	0	9	21	7.6	0	0	3

[1] Data are airport records.
[2] Barometric data (adjusted to old city elevation) and hygrometric data from airport; otherwise city office records.
[3] Observations taken hihourly.
[4] Pressure (adjusted to old city elevation), temperature, and hygrometric data from airport; otherwise city office records.
[5] Temperature and precipitation from city records, other data from airport.

NOTE.—Except as indicated by notes [1], [2], [4], and [5] data in table are city office records.

SEVERE LOCAL STORMS FOR JUNE 1947

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Ohio, entire State of	1-2-6-7-13-14			0		Heavy rains	Rivers and smaller streams overflowed. Crops in lowlands under water; roads closed; families in low sections forced from their homes. Some streams highest on record for June.
Pine Bluff, Ark	1	3:20 p. m	[1] ¼-1½	35	$750,000	Tornado	Moving from southwest, it first touched ground 8 miles southwest of Pine Bluff. Approaching the city, it veered east and southeast bypassing the city then recurving to the northeast. Forward motion about 30 m. p. h. Area of greatest damage at Union. Only point of apparent total destruction a short distance west-northwest of Ladd. 300 injured; 500 homeless. Fish were killed in Bartholomew Bayou.
Phillips County, Kans	1	Afternoon	[1] 3½	0	$10,000	Hail	Wheat damaged in southwestern part of the county. Hail was generally the size of marbles or slightly larger. Moved from southwest; path 8 miles long.
Payette-Fruitland area to vicinity of Emmett, Idaho.	1	5:45-7 p. m	[1] 2	0	Probably $200,000	do	Hailstones, described as "small to golf-ball size", fell throughout the orchard areas in the vicinity of Payette and Fruitland and near Emmett. Damage was estimated at 25 to 30 percent of the crop in the area south of Fruitland; major damage to apple crop. Monetary value of loss of fruit uncertain because of market conditions. Alfalfa and some row crops also damaged in the Payette Valley. Storm moved from west to east up the Payette Valley.
Bolivar County, Miss., near Benoit and Scott.	1	6:30 p. m	1,760	0	$20,000	High wind and hail	Undoubtedly a severe thunderstorm and not a tornado; evidence indicates that it was the remnants of the tornado which passed near Pine Bluff, Ark. on the same afternoon. Over 8 inches of rain fell at Morehead, Miss., beginning at 6:30 p. m., damage primarily to crops, although 2 barns and several houses were destroyed and many others damaged.
Dancy, Ala	2	6 a. m		0	$5,000	Thundersquall	Destroyed the depot, a warehouse, and damaged 1 house and a mill house.
Loma, Colo	3	4:45-5:00 p. m	880	0	$2,500	Hail	Hail piled 3 to 4 inches deep, principal damage to small grains and hay. Path from 2 miles south of Loma in a north-northeast direction to 7 miles north-northeast of Loma.
Rutland, Vt	3	8-10 p. m		0	$2,000,000	Heavy rain	A power dam at East Pittsford, Vt., 6 miles northeast of Rutland, Vt., collapsed. Outlying sections in the lower portion of the city flooded to an estimated depth of 9 to 15 feet necessitating the evacuation of 500 families and suspension of power plants. City was deprived of drinking water, electricity, power and gas for more than 24 hours. The main-line trestle bridge of the Rutland Railroad over East Creek collapsed; several old wooden bridges were destroyed and highways were blocked temporarily by debris. A considerable amount of meadow and cultivated ground in the Rutland area were buried under a thick layer of silt and gravel; growing crops destroyed.
Butler County, Kans	4	2:30 a. m		0	$10,000	High winds	Reported velocities near 80 m. p. h. damaged building roofs, sheds, and trees in El Dorado and surrounding community. Many power and communication lines broken. Crop damage light. Moved from southwest, path 20 miles long.
North Council to Middle Fork of the Weiser River in Idaho.	4 and 7	10:10 a. m.-2 p. m	[1] ½	0	$15,000-$20,000	Hail	Moderate hailstorms occurred on June 4 and 7. Storms headed in Mill Creek Canyon—took a narrow path through North Council orchard area—coming from northeast and then turning back directly north. Principal crop damaged, apples; in center of storm 90 percent of fruit badly marked—balance of area 10 to 35 percent marked.
Finney and Gray Counties, Kans.	4	3 p. m	[1] 3	0	$420,000	Heavy hail	Crops and buildings damaged. Path extended from Pierceville, in southwestern Finney to northwestern Gray County. Poultry losses heavy. Larger hailstones were 9 to 11½ inches in circumference. Losses in and near Pierceville totaled about $20,000. Wheat damage over a somewhat smaller area in southeastern Gray County at 9 p. m.
Great Falls, Mont., 12 miles northeast.	4	Afternoon	[1] 2-3	0	$50,000	Hail	Winter wheat loss.
Twitty, Wheeler County, Tex.	4	5:20 p. m		0	Several hundred	Tornado; hail	Buildings damaged.
Big Stone County, Minn	4	5 p. m	[1] 7½	0	$15,000	Hail	Light to heavy hail that accompanied a severe thunderstorm caused considerable damage to growing crops and slight damage to property.
Shamrock, Wheeler County, Tex.	4	5:40 p. m	[1] 4	0	Up to $250,000	do	Damage mostly to crops by hail. Estimated damage includes amount at Twitty.
Near Milford, Nebr		Late afternoon	Narrow	0	No estimate	3 small tornadoes	A farmhouse considerably damaged and other buildings on this farm destroyed.
Stafford County, Kans	4 and 5	7:30 p. m 1 a. m	 [1] 3	0 0	$30,000	Hail	The more severe storm occurred on the 5th. It was centered in a path running from 5 miles southwest of Hudson to the extreme northeastern part of the county. Gardens were riddled and many windowpanes broken around Hudson, although principal damage was to crops. Storm of 4th moved from northwest; path 12 miles long.
Ford County, Kans	4	8 p. m	[1] 5	0	$50,000	Heavy hail	Hail damage to wheat occurred in an area west of Dodge City through the east-central part. Moved from west; path 10 miles long.
Atchison County, Kans	4	9:47-10:15 p. m	440	0	$30,000	Violent winds	Winds of tornadic proportions damaged property across most of the central part. The path passed through Effingham and the northeastern edge of Atchison. Most of urban damage due to falling trees and broken tree limbs which struck buildings. No crop damage reported. Moved from west-southwest; path 22 miles long.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JUNE 1947—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Shawnee County, Kans.	4	11 p. m.	440	0	$1,250	High winds	In the vicinity of Topeka, at the airport of the Allen Flying Service, a parked plane damaged and a small house moved about 6 feet. Moved from southwest; path ¾ mile long.
Snyder, Colo.	5	P. m.		1		Lightning	Man instantly killed by lightning near Snyder.
Cheyenne Wells, Colo.	5	7-9 p. m.		0	$12,000	Hail	1½-inch hailstones caused severe loss of wheat in section around Cheyenne Wells; damage spotted and ranged from 10 to 50 percent.
Cheyenne County, Kans.	5	8:30-9:30 p. m.	[1] 12	0	$1,000,000	Heavy hail	Principal damage to wheat in the north-central portion; spotted damage in other parts. Storm one of the worst in recent years. Moved from west-northwest; path 18 miles long.
Rawlins County, Kans.	5	9-11 p. m.	[1] 8	0	$500,000	do	Wheat damaged from 40 to 100 percent in storm area, which was located in southern part of county. The heaviest part of the storm was centered south and west of Atwood, where nearly complete losses occurred. Moved from northwest; path 15 miles long.
Geary County, Kans.	6	3 a. m.	1,760	0	$2,000	Windstorm	Chief building damage from falling trees and limbs in a high gusty wind at Junction City. No crop damage occurred in vicinity. Moved from southwest; path 3 miles long.
Riley County, Kans.	6	3:30 a. m.	176	0	$9,000	do	Storm originated 3 miles northwest of Leonardville, and dissipated in the vicinity immediately east of Randolph. High winds damaged buildings, but no crop loss. Moved from southwest; path 15 miles long.
Lyon County, Kans.	6	5 a. m.	1,760	0	$250	do	Loss was confined to few damaged roofs and trees. Storm path passed through west edge of Reading. Moved from northwest.
Julesburg, Colo.	6	1:40-2 p. m.	150	0	$500,000	Tornado	About 1 p. m., tornado formed about 4 miles northwest of Julesburg, followed an easterly course to near the north edge of the town, and at 1:40 p. m., moved in a southeasterly direction through the town. Buildings and automobiles damaged or demolished; crops destroyed; no serious injury to persons. Estimated damage to growing crops (beets, oats, wheat; stored feed, and livestock): $2,600; property damage, $497,400.
Champaign, Ill.	6	3:30 p. m.	40	0	$200,000	do	Moved through 15 blocks in west Champaign, then eastward 15 miles, causing slight damage at Ogden. Forward speed, about 10 to 25 m. p. h.
Major County, Okla., southwest.	6	7:15-7:45 p. m.	200	0	$4,000	do	Storm began 6 miles east of Chester and traveled due east down Highway No. 60 for 1½ miles. Farmhouse destroyed; barn damaged; 2 horses and 2 cows killed.
Berlin, W. Va., and vicinity.	6	Evening		0	No estimate	Heavy hail and rain	Hail up to 2 inches in diameter and 3 to 4 inches deep over about 1 square mile. Gardens and young crops practically destroyed. Windows broken and roofs damaged.
Blaine County, Okla.	6	9 p. m.	[1] 1½-2	0	Considerable	High wind and hail	Between Canton and Eagle City—12,800 acres damaged in a path 13 miles long.
Mercer, Pa.	7	3:55 p. m.		0		Tornado	Buildings completely destroyed; trees uprooted and twisted; cars and trucks blown away; 4 persons injured.
Sharon, Pa.	7	3:55 p. m.	[1] 4	3	$1,000,000	do	25 houses destroyed; 300 others damaged. Hundreds of trees uprooted, power lines down, water and gas mains broken. Poles blown around like splinters.
Neosho County, Kans.	7	4:22-4:53 p. m.	[1] 2	0	$175,000	High wind and heavy hail.	Chief damage to buildings in the storm path, which was through the northern part of the county, especially in Chanute, where many roofs were damaged by hail. Hundreds of windows were broken, nearly all electrical signs damaged, and thousands of glass panes in greenhouses shattered. The hail fell with sufficient force to damage steel car tops. Crop losses were rather limited. Hailstones from ½ to 2 inches in diameter. Moved from west; path 20 miles long.
The Dalles, Oreg., north end Wasco County.	7	4:50-6:15 p. m.	[1] 5	1	$850,000	Severe thunderstorm and flash flood.	Storm moved from west to east. Fruit badly damaged, buildings flooded, severe soil erosion, autos and camp trailers covered with flood debris; city streets damaged.
Trumbull County, Ohio.	7	Afternoon		3		Tornado	Tornado apparently moved from point about 3 miles south of Warren, Ohio, eastward into Sharon and Mercer, Pa. About 30 homes wrecked and 100 people homeless in rural areas; 40 persons injured.
Lower Yakima Valley, Wash.	7 and 8	Afternoon and night		0		Heavy rain, local hail, and wind.	Crop damage to ripe, unpicked cherries, ranged from 10 to 60 percent. Local damage to truck farms. Monetary losses not estimated due to variation in losses and salvage. Few basements flooded.
Crawford County, Kans.	7	5:28 p. m.	880	0	$12,500	Hail and tornado	Damaged area centered in and near Arcadia. Loss from hail damage to buildings and crops was estimated at $7,500. One person injured by flying glass. Wind damage principally to smaller buildings. Moved from southwest; path 1 mile long.
Hagerstown, Md.	7	P. m.		0	Estimated $500,000	Heavy rain and wind	Buildings, including a church, unroofed. Scores of automobiles damaged; streets flooded; street and traffic lights out during a temporary power shut-off.
Baltimore, Md., and vicinity.	7	P. m.		0	Unknown	do	Streets flooded up to 5 feet, and large sections of many roadbeds torn up; dozens of trees fell, damaging 2 automobiles; 60 manhole covers washed into the street. Lightning struck a home in the Dundalk section, damaging the chimney and roof. Power lines blown down.
Morris County, Kans.	7	7:30 p. m.		0	$50	Tornado	Heavy, dark storm clouds passed over Herington before they developed into a tornado, which struck the ground in the open country between White City and Parkerville. The funnel-shaped cloud dissipated rapidly. Storm moved from southwest.
Douglas County, Kans.	7	9:15 p. m.		0	Not estimated	Hail and windstorm	High winds with tornadic characteristics caused considerable damage to buildings and crops in the vicinity 7 miles east of Lawrence. Minor hail damage also occurred to crops and gardens. Moved from west.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JUNE 1947—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Cabell County, W. Va.	7-8	Night of 7, continuing most of the 8th.		0	$105,000 estimated	Torrential thundershowers.	Damage to roads and bridges, estimated at $30,000; damage to crops and loss from soil erosion, estimated at $75,000. Highways blocked temporarily and basements flooded.
Little Skin Creek, W. Va., about 3 miles southwest of Horner.	7-8	Night of 7, continuing on 8.		0	No estimate	Heavy rain and electric storm.	Local flash flood caused some damage to crops.
Claysville, Pa.	7			0		Thunderstorm	Hailstones did much damage to gardens.
Indiana, Pa.	7			0		do	High winds uprooted trees.
Dillsburg, Pa.	7			0		do	Barn and garage leveled; other buildings damaged and trees uprooted; windowpanes broken; telephone and electric wires down.
Hamilton County, Ohio	8	Early morning		0		Severe thunderstorm	Trees blown over and electrical service impaired.
Vadis, W. Va.	8	Early motning		0	No estimate	Heavy rain	Post office at Vadis reported swept away by flash flood in Fink Creek.
Huron County, Ohio	8			0		Heavy rain and hail	Damage to fruit trees and wheat.
Buckhannon, W. Va., and vicinity.	8	Most of day		0	No estimate	Heavy rains	Considerable soil erosion damage. Some cultivated fields flooded and some meadows and pastures sanded. Hail driven by high winds.
Kelly, LeRoy County, Colo.	8	2-3:00 p. m.	880-1,760	0	$300,000	Tornado, hail	Buildings, equipment, and crops on 3 farms completely destroyed; 12 other farms affected. Estimated damage: wheat in the field, $100,000; grain and feed in storage, $5,000; cattle, horses, and poultry, $5,000; buildings, automobiles, and equipment, $190,000. Length of path, 20 miles. 3 people slightly wounded.
Bozeman, Mont., vicinity of.	8	3-4:00 p. m.		0		Light hail	⅜-inch stones, soft.
Ruby Dam, Mont.	8	Afternoon		2		Thunderstorm and squall.	Boat overturned near Alder when squall came up: 2 men drowned.
Hutchinson County, S. Dak.	8	6:30 p. m.	Narrow	0	$67,500	High wind and hail	High wind, blowing from southwest to northeast and accompanied by heavy rain and hail about 5 miles south of Menno, damaged grain fields and buildings.
Clarksburg, W. Va.	8			1	Unknown	Thunderstorm	Lightning struck a garage killing the owner.
Charleston, W. Va.	8			0	do	do	Lightning damaged a church.
Romney, W. Va., and most of remainder of Hampshire County.	8	Afternoon	[1] 9-12	0	No estimate	Heavy hail	Widespread damage to fruit; considerable damage to garden crops. Hail driven by high winds.
Lake County, S. Dak.	9	1:15 a. m.	Narrow	0		High wind	High wind, blowing from south to north, about 7 miles southeast of Madison, blew down a barn and uprooted several trees.
Park Falls, Wisc., vicinity of.	9	9:45 a. m.	[1] 1¼	0	$95,000	Severe wind	12 barns destroyed; several other buildings damaged; many trees, poles and wires down; corn and gardens damaged. Path 5 miles long.
Kelly, Colo.	9	1 p. m.		0	$25,000	Hail	Medium hail damage to grain and sugarbeets.
Wayne County, Ga.	9	4:30-5:30 p. m.		0	$5,500	Wind and hail	Areas near O'Quinn, Harris, and Piney Grove settlements struck by high winds and hail; considerable damage to cotton, corn, and tobacco crops; losses placed at $5,000. Some damage to buildings, mostly to roofs and windowpanes; losses approximately $500. Hail mostly of medium size, with some stones as large as 1 inch in diameter.
South-central to northeastern Nebr.	9	Late afternoon and early evening.		2	$2,000,000	Severe windstorm (some hail)	State Insurance Commissioner reported claims totaling $1,500,000 had been filed. Severe windstorm covered large area.
Savannah, Ga., near	9	About 5:15 p. m.		0	$6,500	Wind and hail	A severe thunderstorm. High winds caused damage to property estimated at $6,500. 2 dairy buildings and an airport hangar badly damaged, including minor damages to 4 airplanes. 1 cow and some chickens killed. Light to moderate undamaging hail.
Pipestone, Murray, Lyon, Renville, Kandiyohi Counties, Minn.	9	6:30-11:53 p. m.		1	$625,000	Possibly small tornado.	Many barns, outbuildings, cabins, garages, farm machinery, silos, windmills, and automobiles demolished or damaged; a number of farm houses damaged; State Hospital buildings wrecked or damaged; 3 boxcars and 3 tankers lifted off the tracks; many poles and wires down; hundreds of trees uprooted; some livestock and much poultry killed; 2 people injured; growing crops damaged. Storm path 140 miles long, from southwest to northeast.
Pipestone, Murray, Lyon, Renville, Kandiyohi Counties, Minn.	9	6:30-11:53 p. m.		0		Hail	Light to heavy hail caused considerable damage to growing crops and some damage to property.
Pipestone, Murray, Lyon, Renville, Kandiyohi Counties, Minn.	9-10	P. m.-a. m.		0		Heavy rains	Railroad tracks and 6 road bridges washed out; highways, roads, streets, and basements flooded; lowlands inundated; growing crops damaged.
Darlington, S. C.	10	Late afternoon		1		Electrical	1 man killed by lightning.
Atlanta, Ga.	11	5:30 p. m.		0	$40,000	Lightning	1 huge barn struck and burned, destroying feedstuff, saddles, other stable equipment, and 5 blooded saddle horses.
Southeastern Donley County and northeastern Hall County, Tex.	11	6:30 p. m.	[1] 14-25	0	Estimate not available.	Hail	Considerable damage to crops; some damage to buildings.
Colusa, Sacramento, and Yolo Counties, Calif.	11-12			0	$273,000	Wind	Relatively small damage to apricots, almonds, pears, plums, prunes, and other fruits due to dropping; also lodging and shattering of grain. Wind caused fires to get out of control, thus contributing to total damage.
Harrisburg, Pa.	11			0		Thunderstorm	Hailstones as big as eggs. Electric and telephone service interrupted, trees uprooted, and many buildings damaged.
Southern half of Wyo.	11-12			0		Heavy snow	Heavy loss to livestock. In many places this was the heaviest June snow on record and the latest to occur in the season.
Deerfield, Va.	12	4-4:40 p. m.		0		Lightning and wind	Lightning killed several cows; wind uprooted some trees and unroofed several buildings.
Great Falls, Mont.	13	4:43 p. m.		0		Wind	Maximum velocity, 60 m. p. h. from southwest; visibility ½ mile. Extreme wind, 65 m. p. h.
Havre, Mont.	13	6:50-7:09 p. m.		0	$1,400	Thunderstorm, wind	Maximum wind 42 m. p. h.; ½ mile visibility. Damage to roofs, fences, and small craft in Fresno Lake.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JUNE 1947—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
New Smyrna Beach, Fla.	14	2:05 p. m.	[1] ¼	0	$150	Squall and severe thunderstorm; waterspouts.	Damage consisted of broken windows and partial unroofing of old building. Early reports described this storm as a tornado or tornadolike wind. Waterspouts developed as storm moved out to sea.
Lake Garfield, Fla.	14	Afternoon		0	$500	Small tornado	Two tenant houses damaged and a number of citrus trees uprooted.
Atchison County, Kans.	15	3-4:30 a. m.		0	$1,000	High wind and hail	Gardens and fruit trees damaged by hail driven by strong winds in the vicinity of Atchison. Large patches of hail still remained in yards at 10 a. m. Unestimated crop damage to several thousand acres along a strip in the vicinity of Huron, northwest of Atchison. Storm moved from north.
Brown County, S. Dak.	16	5:25-5:38 p. m.	Narrow	0		High wind and heavy rain.	High wind southeast to northwest, accompanied by heavy rain, damaged trees, power and telephone poles, and wires.
Columbus, Mont., vicinity of.	16	8:30 p. m.	440	0	$12,000	Hail	Moderate to heavy, marble-sized stones. Damage to winter wheat.
Nemaha County, Kans.	16	10:30-11:30 p. m.	[1] 2	0	$150,000	Heavy hail	Hailstones varied in size from marbles to nearly as large as baseballs. Greatest loss occurred in the east-central part of the county, with considerable spotted damage in other parts. Chief loss from crop damage. Storm moved from southwest, path 5 miles long.
Brown County, Kans.	17	3 a. m.	[1] 3	0	$100,000	do	Chief loss from spotted damage to wheat ranging up to nearly 100 percent in many fields in the southern part of the county where the storm path centered from Fairview through Horton to Everest. Near Fairview drifts of hail were reported hip deep on one farm. Fruit trees and gardens were badly hit in spots and some roof damage occurred in Horton. Storm moved from west; path 5½ miles long.
Sterling, Colo., northwest.	18	2 p. m.		0	$10,000	Tornado	Buildings and crops on one farm severely damaged; 6 other farms in the Liberty School area affected.
Davenport, Fla.	18	5:30 p. m.		4	0	Thunderstorm	Lightning killed 4 people as they sought shelter under a lean-to on a barn.
Longmont, Colo.	18	2 p. m.	5,240	0	$50,000	Hail	Egg-sized hailstones destroyed crops and damaged buildings in an area of 30 square miles around Longmont. Roofs and greenhouses extensively damaged, windows and neon signs broken, and crop loss ranged from 25 to 75 percent. Crops affected were beets, row crops, hay and grain.
Rye, Beulah County, Colo.	18	P. m.		0	$120,000	Flood	Green Horn River flooded homes, washed out roads and 12 bridges, and damaged the water supply system.
Chase County, Kans.	18	6-7:30 p. m.	1,320	0	Small	Hail	Most of hail fell on pasture land in southern part of county. Some damage to wheat fields occurred in southwestern portion. Storm moved from southwest; path 10 miles long.
Lyon County, Kans.	18	8:30 p. m.	880	0	$4,000	do	Spotted hail damage to wheat in southeastern part of Lyon County east of Olpe. Larger stones were the size of a dime. Storm moved from west-southwest, path 3 miles long.
Lake Charles, La.	19	5:50 a. m.-2:28 p. m.		0	Exceeding $20,000	Cloudburst	Thunderstorm began 6:15 a. m. and continued until 12:55 p. m.; rainfall between 6 a. m. and 3 p. m., reaching 15.79 inches; 6-hour amount, 15.38 inches (6 a. m.-12 noon), exceeding the previous greatest recorded 6-hour amount of 14.16 inches at Taylor, Tex., on Sept. 9, 1921. A refrigerating company on the edge of a drainage ditch which overflowed, suffered damages to goods and equipment.
Shelby and vicinity in Cleveland County, N. C.	19	2:25 p. m.-around 4 p. m.	[1] Several	1	$400,000-$510,000	Wind, hail and rain	The storm struck first in Rutherford County, causing some damage, then moved into southwestern Cleveland County, becoming more severe. Hail cut a wide swath through Boiling Springs to Lattimore and across to Fallston; wind uprooted numerous trees, unroofed several buildings, and blew down a smokestack. In Shelby, a radio tower was felled and 1 man electrocuted. Wind and hail damage to young cotton and matured grain estimated at $400,000-$500,000. Wind damage to other property was estimated at $10,000.
McCormick, S. C.	19	Late afternoon		1		Electrical	1 man killed by lightning.
Plentywood, Mont., vicinity of.	19	7:30 p. m.		0	Slight	Hail	Light hail: very little damage.
Vida, Mont., 12 miles north of.	19	10:00 p. m.	1,760	0	do	do	Moderate hail, small stones; slight damage to grain and gardens.
Along the Wake-Chatham County line, N. C.	20	Around 4 a. m.	[1] 1½	0	Estimated over $100,000.	Hail, wind, and rain	Storm struck a 6-mile area along the Wake-Chatham border, leveling several buildings and causing crop and property damage estimated to be at least $100,000. Most crop damage to tobacco and corn, with tobacco almost completely destroyed in some fields.
3 townships of Wayne County, N. C.	20	About 6 a. m.	[1] 2	0	Unknown	Wind and rain, hail	No estimate of damage readily available, but tobacco and corn suffered heavily. Hail which fell for 15 minutes in an area of 3 square miles also damaged cotton, soybeans, and watermelons. Damage in some fields ran close to 100 percent. High winds unroofed several buildings.
Fall River County, S. Dak.	20	4:30 p. m.		0	$75,000	Flash flood	In Hot Springs vicinity, 5 bridges washed out, railroad tracks and highways undermined, telephone and power lines wrecked, streets and basements flooded.
Death Valley, Calif.	20	About 5:10-9:00 p. m.		0		Wind	Cabins damaged at Stovepipe Wells; several trees blown down at Furnace Creek Ranch; roof blown off Chief Ranger's quarters at Cow Creek; telephone poles upset; glass blown from window sashes. Storm extended into the Antelope Valley and also into Nevada. At Mount Laguna Airway Station in San Diego County (elevation 6,202 feet), gusts reached a velocity of 128 m. p. h.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JUNE 1947—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Hawley, Pa.	20			0		Thunderstorm	Hailstones, size of marbles, damaged many gardens.
Eastern two-thirds of Wyo.	20-21			0	$250,000	Cold, heavy rain	Heavy loss to livestock. Rainfall amounts ranging up to 4 inches or more at some stations. Combined loss to livestock in this and snowstorm of 11-12, approximately a quarter million dollars. Losses were confined entirely to newly shorn sheep and new lambs. In this storm, some local flooding was reported, but losses were not large.
Yuba, Sutter, Placer, Yolo, Sacramento, San Joaquin, and other counties in central Calif.	20-21			0	Over $1,000,000	Wind	Orchard trees uprooted or limbs broken; tomato plants and grapevines broken; considerable loss of almonds, walnuts, apricots, pears, plums, and prunes, due to dropping; damage to grain by shattering and lodging. Fires going out of control burned several buildings and fields of grain.
Hopewell Junction, N. Y.	20			0	Unestimated	Hail	Tree fruit within 2 miles of Hopewell Junction, Dutchess County, severely damaged.
Yuma, Colo.	21	P. m.		0	$10,000	do	Hail caused severe damage in spotted areas near Yuma. Principal crop affected, wheat.
Norton County, Kans.	21	7 p. m.	880	1	$50,000	Tornado	Storm moved from south; path 25 miles long, extended from vicinity west of Logan to 3 miles northeast of Almena in the eastern part of the county. 7 funnel-shaped clouds visible. Two of the twisters caused destruction of much property. Crop damage was about $7,000. 3 people injured.
Phelps County, Nebr.	21-22	Night	Various	0	$175,000	5 tornadoes	Buildings on 4 farms destroyed, damaged buildings on 22 others. 8 persons injured, 1 seriously. 4 cars wrecked; some livestock killed.
Central Nebraska	21-22	Night	Widespread	13	Several millions	Excessive rains and flash floods.	Severe damage to crops, roads, railroads, bridges, and buildings. Severe soil erosion.
Greeley, Welby, Brighton, Colo.	23	1:40 p. m.		0	$50,000	Flood	100 homes in Greeley flooded. Beet fields, truck crops, and pastures were washed out or damaged.
Shelby, Mont., vicinity of	23	2 p. m.	[1] 3	0	Moderate	Hail	Slight damage to wheat; light hail size of peas.
Butte, Mont., 5 mi. northwest.	23			1		Thunderstorm, lightning.	Man killed by lightning.
Decatur County, Kans.	24	4 p. m.	[1] 3	0	$128,800	Heavy hail	Wheat damaged in 3 areas around Oberlin. The larger losses were 12 miles northeast and about 3½ miles northwest, with a much smaller damaged area southwest of the city. Storm moved from west; path 6 miles long.
Wadena, Minn. and vicinity.	24	5:20-5:28 p. m.	1,760	0	$2,000	Hail	Light to heavy hail caused considerable damage to growing crops.
Rawlins County, Kans.	24			0	Not estimated	Small tornado	One set of farm buildings was destroyed north of Herndon. Other details unknown.
Rush County, Kans.	25	3:30 p. m.		0	Not estimated	Hail	Spotted damage over the county with several areas being severely hit. Hailstones were generally from ½ to ¾ inch. Storm moved from west-northwest.
Sumner County, Kans.	25 and 26	4-7 p. m. 7 a. m.	[1] 4	0 0	$1,500,000	Violent wind and heavy hail.	Storm paths traversed the county from the northwest to the southeast, spreading to the southeast of Belle Plaine on the 25th and centering south of Mayfield to Perth eastward on the 26th. Chief loss from crop damage; property damage also very heavy. Hailstones ranged up to golfball size. High winds which accompanied the hail toppled oil derricks and silos.
Kingman County, Kans.	25 25 26	4:30 p. m. 5:30 p. m. and 6 a. m.	[1] 5 [1] 4 [1] 5	0 0 0	$2,250,000	3 heavy hailstorms	Wheat was damaged across most of the northern part of the county. Hailstones were generally about ¾ to 2 inches in diameter. Damaged areas were centered from Varner and Kingman eastward to the county line on the 25th, and from Calista to Adams on 26th. All 3 storms moved from northwest; lengths of paths about 15 miles.
Northeastern S. Dak.	25	5:30-7 p. m.	[1] 1-2	0		Hail	1 to 2 miles wide for distance of 40 miles, from northeast of Groton, Brown County into Day County. Spotted damage to crops estimated at 20 to 100 percent.
Northeastern Ark.	25	Afternoon		1	$2,000	Thunderstorms, wind, hail.	A man killed by lightning near Warden. Most property damage by wind and hail to business property in Walnut Ridge.
Sedgwick County, Kans.	25 and 26	Evening and morning	[1] 5	0	$500,000	Heavy hail	Chief loss to wheat in the Cheney community west of Wichita and southeastward through Viola. Livestock damage comparatively light, though many chickens were killed. Hailstones, which were reported as large as baseballs, severely damaged buildings in locality 4 miles south of Cheney. Storm moved from northwest; length of path 12 miles.
Pratt County, Kans.	26	4:30-5 a. m.	[1] 3½	0	$250,000	High wind and heavy hail.	Wheat badly damaged in northeastern portion of county. Heaviest losses centered in area bordering town of Luka. Strong winds, which accompanied the hailstorm, caused minor building damage in Luka and Pratt. Storm moved from northwest; path 15 miles long.
North Little Rock, Ark.	26	Afternoon		0	$5,000	Wind	Homes damaged by falling trees; 1 trailer destroyed.
Paragould, Ark.	26	do		0	$3,000	do	Broken windows and damaged roofs.
Hennepin, Ramsey, Scott, and Dakota Counties, Minn.	26	6:03 p. m.		0		Thundersqualls	Extensive damage to trees, a number of poles and wires down, several airplanes and hangars damaged.
Hennepin, Ramsey, Scott, and Dakota Counties, Minn.	26	6:38 p. m.		0	$27,500	Hail	Light to heavy hail that accompanied a severe thunderstorm caused considerable damage to growing crops and property.
Graham County, Kans.	26	9:30 p. m.	[1] 8	0	$20,000	Heavy hail	Chief damage to crops. Hailstones varied in size, from that of peas to hen eggs. Storm moved from northwest; path 8 miles long.
Russell County, Kans.	26	10 p. m.	1760	0	$200	High winds	Very high winds which approached Russell unexpectedly passed through the city very briefly. Chief loss to trees and a few broken windowpanes. No damage to crops. Storm moved from northwest; path 7 miles long.
Osborne County, Kans.	26	10:45 p. m.	[1] 10	0	$1,400	Strong winds	Scattered property and crop damage from Osborne northwestward. Major part of damage to property. Storm moved from northwest; path 25 miles long.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JUNE 1947—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Columbus, Mont., vicinity of.	27	Noon	880	0	$5,000	Hail	Moderate hail, size of marbles, considerable damage to wheat.
Billings, Mont., vicinity of.	27	1 p. m.	1760	0		do	Heavy hail, small stones; considerable to severe damage to beans, sugarbeets, and field peas.
Western, S. Dak.	27	2:53 p. m.	Narrow	0		Tornado	Devastated strip, 300 to 500 yards by approximately 1 mile long, just north of Spearfish; several buildings wrecked; some livestock killed; and several people injured.
Glasgow, Mont., vicinity of.	27	4 p. m.	[1] 2	0		Hail	Moderate hail, ¾ inch stones, some damage to wheat.
Havre, Mont., vicinity of.	27	7:30 p. m.	[1] 4	0	Some	do	Moderate to heavy hail, 1 inch stones; wheat and barley damaged.
Extreme southwestern, south-central and southeastern counties, Minn.	27–28	9 p. m.–4:30 a. m.		0	$670,000	Thundersqualls	A six-unit veterans' housing project and many barns, outbuildings, silos, and windmills demolished; a creamery, a lumber yard, and a fairgrounds grandstand unroofed; church steeple blown down; 6 grain tanks destroyed; many barns, houses, town buildings, garages, and automobiles damaged; a number of airplanes wrecked and many damaged; hundreds of trees uprooted; many poles, wires, and power lines down; some livestock and much poultry killed; a number of persons injured; growing crops damaged. Path about 200 miles long; general direction from west to east.
Extreme southwestern, south-central and southeastern counties, Minn.	27–28	9 p. m.–4:30 a. m.		0	$125,000	Hail	Heavy hail accompanied a severe thunderstorm. Much damage in places to growing crops and considerable damage to property.
Extreme southwestern, south-central and southeastern counties, Minn.	27–28	9 p. m.–4:30 a. m.		0	$5,000	Electrical	A farm home, a city building, and a residence struck by lightning. The farm home was burned.
Butler County, Kans.	27	11 p. m.	880	0	$9,000	Hail	Damage to crops in vicinity 8 miles north of Potwin. Hailstones up to ½ inch in diameter. Storm moved from west; path 2 miles long.
Wisconsin, southern	28–29	7 p. m.–2 a. m.		0	$1,545,154	Severe linesquall and floods.	About 136 barns, 25 outbuildings, 15 silos, 1 church, store, and 8 small airplanes demolished; many houses, buildings, windmills, and farm equipment damaged. Large losses in growing crops and by soil erosion. Hundreds of trees uprooted, blocking highways, and damaging electric and telephone wires; more than 5,000 telephones out of order. Heaviest losses to utilities in Dane County. Some livestock and much poultry killed. 3 people were injured. Several highways and bridges were damaged; 400 feet of railroad track washed out 5 miles south of Sparta, and 3 miles of track damaged near Woodman-Wauzeka. Estimated flood damage, $549,500.
Southeastern South Dakota.	28	1:30–1:45 p. m.	[1] 2	0		Hail	Hailstones, size golf balls, cut through a strip 2 miles wide and several miles long east of Sioux Falls. Crop losses varied up to 80 percent.
Hopewell, Va.	28	3–4 p. m.	100	0	$200,000	Tornadic wind	Losses particularly heavy in a 2-block business section of Main St., and 6-block wide residential area; several people injured; none seriously, and about 20 left homeless. Community was isolated for nearly 9 hours. Approximately 100 buildings damaged; a great number of trees uprooted or snapped off.
York, S. C.	28	During day		2		Windstorm	2 men drowned in Catawba River while fishing when their boat was swamped by a sudden gust of wind.
Scottsbluff County and other adjacent areas, Nebr.	28–29	5–5:30 p. m. and 7–7:15 a. m.	[1] Up to 15.	0	$1,500,000	Heavy hail	Hail in strips, mostly in Scottsbluff County, but heavy spotted damage in much of southern Panhandle. Some wind damage. 73 family living quarters in Scottsbluff made uninhabitable.
Chewsville, Md.	28			0		Wind and rain	Buildings damaged; trees and power poles blown down.
Keedysville, Md.	28			0		Hail and wind	Considerable damage to crops.
Northern counties of Ohio.	29	Afternoon		0		Severe thunderstorms.	A number of buildings struck by lightning.
Haxtum, Flemming, Holyoke, Colo.	29	8:30–9:30 p. m.	[1] 1–6	0	$2,000,000	Hail	Severe loss to wheat, corn, and barley. Storm path about 35 miles long. Buildings damaged, windows and neon signs broken.
Saunders County, Nebr., northwestern portion.	30	7:15 a. m.	[1] Up to 2.	0		Heavy hail	Winter wheat damage up to 100 percent; several separate areas were badly hailed; some damage to buildings.
Dillon, S. C.	30	During day		0	$5,000	Windstorm	Probably a small twister. Flattened a barn and 3 other buildings; 3 persons injured.

See footnotes at end of table.

LATE STORM REPORTS FOR MAY 1947

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	May 1947						
Craighead, Greene, Poinsett, and Mississippi counties, Ark.	1	4–5 a. m.	[1] 50	1	$200,000	Severe thunderstorm	Storm first hit at Cash, Craighead County, at 4 a. m. Damage mostly to homes, stores, churches, and schools. 1 person killed at Caroway. 35 people injured.
Scottsville, Va., ¼ mile north.	21	7 p. m.	100	0	15,000	Tornado	Path one mile long; buildings unroofed; sheds blown up; shade and fruit trees uprooted; 2 persons injured.
Blanding, Utah	23	10:53 a. m.		0		do	Large black funnel-shaped cloud resembling tornado, accompanied by roaring noise and large hailstones measuring 1½ to 2 inches in diameter. Damage reported to roofs and crops. Numerous persons indicated ½ of fruit crop destroyed. No estimates of the loss were received.
Northern half of Iowa	28			0		Snow	One to eight inches of snow fell over northern Iowa. In Des Moines it was the latest snow in history; numerous other stations reported record amounts for any May date as well as the latest snow on record. Branches torn from trees. Disrupted electric and telephone service in many communities. Heaviest snowfall amounts were 8.0 inches at Cherokee, 7.5 inches at Waukon, 6.0 at Hawarden and Alton, and 5.0 inches at Cushing, Milford, Northwood, and Iowa Falls.
Northwest half of Iowa	29	Early morning		0		Severe freeze	Temperatures fell to a low of 23° at Cherokee and Primghar, and readings in the northwest quarter were generally below 28° F. Freeze caused heavy damage to truck crops and some fruits in northwest quarter; elsewhere damage was spotted. Corn recovered in good shape—mostly just set back. Little or no damage to small grains. Light and spotted damage to soybeans that were up.

[1] Miles instead of yards.
[2] Includes run-off.

SOLAR RADIATION AND SUNSPOT DATA FOR JUNE 1947

[Solar Radiation Investigation Section, I. F. HAND in Charge]

SOLAR RADIATION OBSERVATIONS

Explanations of the tables and references to descriptions of instruments, stations, and methods of observation and to summaries of data, are given in the MONTHLY WEATHER REVIEW, vol. 72, page 43, January 1944. A list of pyrheliometric stations is given on page 45 of the same REVIEW. An explanation of the formula used in computing the air mass values for each station will be found in vol. 75, No. 3, March 1947, p. 47.

TABLE 1.—*Solar radiation intensities during June 1947*

[Gram calories per minute per square centimeter of normal surface]

MADISON, WIS.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	Sun's zenith distance P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure 7:30 a. m.[1]	1:30 p. m.[1]
	Air mass 4.81	3.84	2.88	1.92	0.96*	1.92	2.88	3.84	4.81		
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb.	mb.
June 3	0.73	0.74	0.69	1.01						8.1	8.7
June 16	.71	.83	.94	1.15	1.38					11.4	9.1
June 20		.38	.49	.84	1.17					11.4	12.7
June 24	.76	.86	.99	1.14	1.36					15.3	12.7
June 26				1.16	1.36					14.2	13.7
Means	.73	.70	.78	1.06	1.32						
Departures	+.08	−.08	−.13	+.02	.00						

LINCOLN, NEBR.

	Air mass 4.77	3.81	2.86	1.91	0.95*	1.91	2.86	3.81	4.77		
June 23					1.41	1.17	1.03	0.92	0.82	12.7	13.7
June 25					1.36	1.12	1.01	.88	.77	17.7	18.3
June 26					1.38	1.08	.92			19.6	21.1
June 27					1.35	1.14	.99			19.0	21.8
June 30					1.35	1.12	1.03	.92	.84	21.1	19.0
Means					1.37	1.13	1.00	.91	.81		
Departures					+.02	+.04	+.10	+.13	+.15		

BLUE HILL, MASS.

	Air mass 4.86	3.89	2.92	1.94	0.97*	1.94	2.92	3.89	4.86		
June 1				0.90						10.0	10.8
June 4	0.75	0.88	1.05		1.48	1.21				7.2	6.5
June 10					1.33	.75	0.61	0.49	0.38	11.2	16.4
June 11							.53	.45	.34	15.9	21.4
June 12					1.39	1.10	.88	.76	.66	22.8	17.1
June 13	.80	.90	1.04	1.21	1.42	1.17	1.00	.88	.79	11.0	8.6
June 15						.94		.47	.34	15.9	15.5
June 16	.44	.60	.74	1.01						12.8	12.2
June 17					1.40		.83	.66	.55	11.9	11.2
June 21			1.05	1.17	1.40	1.24	1.06	.95	.85	12.0	10.3
June 22	.81	.92	1.04	1.22	1.40	1.16	.93			12.4	11.1
June 23	.81	.91	1.04	1.20						14.0	9.5
June 27	.34	.44	.72	.89	1.17	.81	.52	.40	.32	19.3	19.8
June 28	.57	.71	.81	1.00						19.0	21.2
June 30					1.28	1.07	.92	.75	.64	23.8	22.6
Means	.65	.77	.94	1.08	1.36	1.05	.81	.65	.54		
Departures	.00	+.02	+.05	+.04	+.05	+.01	−.03	−.02	−.02		

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TABLE 1.—*Solar radiation intensities during June 1947*—Continued

[Gram calories per minute per square centimeter of normal surface]

CLIMAX, COLO.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	Sun's zenith distance P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure 7:30 a. m.[1]	1:30 p. m.[1]
	Air mass 3.24	2.59	1.94	1.29	0.65*	1.29	1.94	2.59	3.24		
June 1				1.28	1.46						
June 4						1.32	1.20	1.08	0.98		
June 5			1.18		1.50	1.34	1.20				
June 6			1.23	1.36	1.48	1.36	1.13	1.01			
June 8		1.09	1.24	1.38	1.54						
June 9					1.49						
June 10				1.40	1.51	1.35		.97			
June 13			1.32	1.46	1.62	1.42	1.29	1.16	1.08		
June 14			1.30	1.43	1.52						
June 15			1.15	1.35	1.54	1.28	1.12				
June 16				1.34	1.46	1.26					
June 17			1.09	1.24	1.41						
June 19			1.21	1.35	1.53						
June 23			1.29	1.40	1.59						
June 25			1.23	1.37	1.56	1.34	1.22	1.10	1.01		
June 26			1.24	1.42	1.60	1.42	1.28	1.18	1.07		
June 27			1.31	1.44	1.59	1.42	1.28	1.16	1.06		
June 28			1.29	1.42	1.58	1.41	1.27	1.17	1.08		
June 29					1.59	1.38	1.26	1.16	1.09		
June 30			1.28	1.39	1.58	1.42	1.29	1.16	1.08		
Means		(1.09)	1.24	1.38	1.53	1.36	1.24	1.12	1.06		

TABLE MOUNTAIN, CALIF.

	Air mass 3.76	3.01	2.26	1.51	0.75*	1.51	2.26	3.01	3.76		
June 4				1.36							
June 6				1.34							
June 7				1.33							
June 9				1.38							
June 10	1.00	1.09	1.20	1.34	1.50						
June 12				1.34							
June 13				1.35							
June 18				1.36							
June 19				1.35							
June 22				1.32							
June 23				1.26							
June 24				1.28							
June 25				1.31							
June 26				1.35							
June 27				1.37							
June 28	1.06	1.15	1.26	1.37	1.51						
June 29				1.38							
June 30				1.41							
Means	(1.03)	(1.12)	(1.23)	1.34	(1.50)						

[1] 75th meridian time.
* Extrapolated.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	Salt Lake City, Utah	State College, Pa.	Davis, Calif.	East Wareham, Mass.	Toronto, Canada.	Ithaca, N. Y.	Boulder, Colo.	Soda Springs, Calif.	Honolulu, Hawaii	Pearl Harbor, Hawaii
1947	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
June 4	728	467	145	597	656	575	620	660	701	651	720	550	672	790	777	467	756	555	750	637	489	642	562	703	710
June 5	746	501	676	451	670	509	383	486	600	528	396	639	440	-----	774	299	664	477	712	538	439	504	80	549	494
June 6	478	386	390	345	488	724	623	221	552	631	716	643	675	606	568	499	328	297	596	606	466	526	359	621	646
June 7	458	381	635	230	55	470	628	687	300	656	190	505	708	222	110	507	148	372	146	186	265	694	146	685	717
June 8	338	568	754	457	64	665	650	726	30	425	188	548	559	60	48	237	195	628	43	311	208	661	119	627	613
June 9	490	464	576	621	598	780	668	777	310	687	726	624	595	360	450	500	643	798	318	484	401	443	792	646	574
June 10	705	361	566	584	549	776	----	502	567	666	461	479	704	707	715	493	619	799	673	601	417	783	747	634	544
Means	563	438	534	470	440	643	595	580	437	607	485	570	622	457	492	429	479	561	463	480	384	608	400	638	614
Departures	+49	−71	+24	+27	−51	−35	+88	+55	−31	+48	−88	+37	+79	−64	−55	-----	−23	−108	−59	+7	−121	+94	----	----	----
June 11	550	303	397	526	533	775	573	714	506	645	260	280	627	640	632	99	643	816	557	510	413	36	831	661	630
June 12	630	85	84	414	668	774	404	623	646	549	719	618	753	712	693	677	704	801	602	495	220	206	822	696	431
June 13	344	100	426	296	544	774	638	422	674	344	672	599	725	746	740	796	252	790	709	632	346	809	802	677	595
June 14	191	132	789	124	262	787	448	769	233	573	724	257	609	315	355	723	276	816	320	132	122	748	819	528	504
June 15	717	585	736	149	562	658	536	802	581	604	698	414	671	636	598	808	253	742	541	233	115	734	782	514	361
June 16	403	733	570	651	518	638	736	701	489	642	357	250	694	577	520	636	432	686	488	681	426	570	636	467	482
June 17	627	254	632	267	452	760	642	168	546	668	401	566	681	639	722	345	560	782	676	538	460	476	806	543	616
Means	494	313	519	346	506	738	568	600	525	575	547	426	680	609	608	583	446	776	556	460	300	511	783	584	517
Departures	−9	−183	−19	−88	+23	+38	+56	+47	+59	+47	−63	−103	+96	+114	+98	-----	−3	+44	+36	−62	−185	−19	----	----	----
June 18	139	590	290	607	62	768	657	158	257	594	709	422	696	322	154	779	237	784	206	617	382	130	806	606	579
June 19	657	703	110	553	725	748	750	235	372	441	553	358	529	508	641	729	678	743	446	625	478	700	777	700	692
June 20	626	714	219	639	586	772	630	408	401	433	678	252	214	508	332	355	757	836	237	654	480	480	693	592	456
June 21	425	559	269	671	671	772	407	452	685	231	385	589	712	770	750	347	632	787	680	726	438	134	828	639	565
June 22	722	457	222	646	702	756	541	496	678	81	706	548	695	780	756	605	714	773	727	664	480	491	819	674	655
June 23	575	208	789	615	611	748	474	562	654	686	671	307	675	771	689	787	683	772	682	654	480	611	790	664	619
June 24	533	710	670	266	87	744	466	853	126	126	713	125	522	161	115	547	554	735	143	635	272	608	676	721	559
Means	525	563	367	570	492	758	561	452	458	371	631	371	578	546	491	593	608	776	446	654	430	451	770	657	589
Departures	+21	+26	−205	+27	+3	+44	+22	−130	+4	−183	−31	−193	−21	+8	−55	-----	+66	+72	−59	+104	−65	−102	----	----	----
June 25	594	355	760	516	408	740	643	590	430	404	574	393	472	434	523	602	483	751	486	386	218	696	762	511	509
June 26	333	731	635	548	318	774	----	651	597	399	585	587	501	647	467	356	342	766	588	477	234	754	782	423	507
June 27	664	601	738	485	589	791	----	621	561	402	463	418	512	691	647	610	528	767	584	623	484	773	822	551	340
June 28	183	695	560	604	400	805	----	695	605	470	746	648	644	684	652	748	238	788	622	542	327	758	830	670	688
June 29	408	644	358	470	566	798	----	437	593	513	744	676	718	666	450	625	614	776	468	544	453	444	836	584	518
June 30	369	366	594	578	524	782	----	302	579	437	736	546	717	671	599	788	428	779	554	647	237	651	819	636	545
July 1	594	754	788	556	453	778	----	-----	557	421	713	511	696	624	490	755	402	781	589	461	364	752	815	531	370
Means	449	502	633	536	466	781	----	-----	560	435	652	540	609	628	547	641	434	773	556	526	331	690	809	558	497
Departures	−80	+46	+41	+22	−18	+75	----	-----	+79	−103	+20	+3	+15	+120	−3	-----	−92	+43	+48	−45	−154	+116	----	----	----
ACCUMULATED DEPARTURES ON JULY 1, 1947																									
	+5,691	−2,891	−4,823	−238	−2,765	+3,668	----	-----	−1,323	−2,646	+154	−5,922	+4,382	−553	−4,151	-----	−763	+686	----	−2,562	−12,607	+1,029	----	----	----

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947

By Lucy T. Day

[Equatorial Division, U. S. Naval Observatory]

[Communicated by the Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive towards the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day under Mount Wilson group number, longitude, latitude, area of spot or group, and spot count, are included respectively: number of groups, assumed longitude of center of the disk, assumed latitude of center of the disk, total area of spots and groups, and total spot count.

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 1	11 18	8607	−71	359	+11	72	145	1	F	U. S. Naval.
		8605	−33	37	−14	35	61	3		
		8605	−24	46	−13	25	97	9		
		8606	−29	41	−22	34	97	5		
		8606	−20	50	−21	28	109	6		
		8603	−19	51	−32	35	24	3		
		8604	−15	55	−12	17	16	1		
		8601	−13	57	+21	25	73	4		
		8602	−9	61	+15	18	48	3		
		8594	+3	73	−46	46	6	1		
		8594	+15	85	−43	44	61	1		
		8593	+21	91	−20	28	24	2		
		8593	+31	101	−21	36	194	6		
		8600	+23	93	+18	30	61	8		
		8599	+29	99	−23	34	194	8		
		8598	+53	123	−5	53	194	4		
		8591	+56	126	−23	58	242	1		
		8609	+60	130	+21	62	12	2		
		8608	+65	135	+13	66	73	8		
		(15)		(70)	(−1)		1,731	76		
2	10 38	8607	−58	359	+11	60	121	1	F	Do.
		8605	−17	40	−14	21	36	2		
		8605	−11	46	−13	16	73	3		
		8606	−12	45	−22	23	242	10		
		8603	−7	50	−32	32	73	4		
		8604	−1	56	−12	11	12	2		
		8601	+1	58	+21	22	48	1		
		8602	+4	61	+15	16	61	2		
		8594	+18	75	−45	46	24	1		
		8594	+27	84	−43	48	48	1		
		8600	+38	95	+18	42	24	2		
		8599	+41	98	−23	45	242	8		
		8593	+42	99	−21	45	194	1		
		8598	+66	123	−4	66	194	5		
		8591	+68	125	−23	70	242	1		
		8608	+77	134	+15	78	145	4		
		(14)		(57)	(−1)		1,779	48		
3	10 8	8611	−80	324	+23	80	291	3	G	Do.
		8611	−76	328	+23	77	48	1		
		8607	−46	358	+11	48	121	1		
		8606	−3	41	−22	22	170	11		
		8606	+6	50	−21	22	48	4		
		8606	+7	51	−19	21	24	10		
		8605	+1	45	−13	13	48	3		
		8603	+4	48	−32	32	73	4		
		8603	+9	53	−33	34	48	8		
		8601	+13	57	+20	23	12	8		
		8602	+17	61	+14	24	6	2		
		8594	+40	84	−43	55	24	3		
		8599	+50	94	−22	52	48	6		
		8599	+56	100	−22	58	145	6		
		8593	+56	100	−20	59	145	1		
		8598	+78	122	−3	78	97	2		
		8591	+80	124	−22	80	194	2		
		(12)		(44)	(0)		1,542	75		
4	10 15	8612	−82	308	+20	82	97	2	G	Do.
		8612	−78	312	+20	79	194	4		
		8612	−78	312	+24	80	97	1		
		8613	−81	309	+15	82	36	1		
		8611	−66	324	+24	69	194	5		
		8611	−64	326	+23	67	388	13		
		8611	−60	330	+22	62	48	1		
		8607	−32	358	+11	33	121	1		
		8607	−32	358	+13	34	12	8		
		8606	+11	41	−21	24	97	13		
		8606	+18	48	−19	27	73	14		
		8606	+20	50	−21	29	48	3		
		8605	+13	43	−13	18	12	6		
		8603	+16	46	−32	37	73	2		
		8603	+22	52	−33	39	48	3		
		8594	+50	80	−42	60	24	2		
		8599	+65	95	−24	68	24	2		
		8599	+70	100	−23	71	145	5		
		8593	+69	99	−21	70	194	4		
		(10)		(30)	(0)		1,925	90		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 5	10 31	8612	−70	307	+15	70	36	1	G	U. S. Naval.
		8612	−70	307	+21	71	145	3		
		8612	−69	308	+19	71	73	1		
		8612	−66	311	+23	68	194	9		
		8611	−53	324	+24	58	267	16		
		8611	−48	329	+22	51	170	5		
		8607	−19	358	+11	22	61	1		
		8607	−18	359	+9	21	48	7		
		8606	+23	40	−21	31	73	5		
		8606	+32	49	−21	38	48	1		
		8605	+28	45	−12	31	12	3		
		8603	+29	46	−32	42	61	2		
		8603	+35	52	−33	46	48	1		
		8614	+39	56	+20	42	61	7		
		8593	+83	100	−21	83	194	3		
		8599	+83	100	−24	83	97	2		
		(10)		(17)	(0)		1,588	67		
6	10 44	8613	−56	308	+15	58	73	1	G	Do.
		8613	−55	309	+14	57	36	5		
		8612	−56	308	+21	58	242	7		
		8612	−55	309	+19	58	73	1		
		8612	−53	311	+23	57	194	6		
		8611	−40	324	+24	46	388	13		
		8611	−34	330	+22	40	339	6		
		8618	−28	336	+11	31	12	3		
		8616	−12	352	+8	15	12	1		
		8617	−9	355	+21	23	24	7		
		8607	−4	0	+9	10	145	12		
		8605	+26	30	−16	30	12	2		
		8606	+37	41	−22	41	97	12		
		8606	+46	50	−22	50	48	4		
		8603	+44	48	−33	50	48	3		
		8614	+52	56	+20	55	61	3		
		(11)		(4)	(0)		1,804	76		
7	12 5	8612	−42	308	+20	46	291	12	G	Do.
		8612	−38	312	+22	43	194	14		
		8613	−39	311	+15	42	158	15		
		8620	−28	322	−16	32	24	2		
		8611	−26	324	+24	35	533	31		
		8611	−19	331	+22	28	485	18		
		8617	+7	357	+20	21	97	2		
		8616	+11	1	+9	14	97	5		
		8619	+29	19	+21	35	12	1		
		8603	+50	40	−23	53	12	2		
		8606	+51	41	−22	53	73	7		
		8614	+66	56	+19	68	12	1		
		(10)		(350)	(0)		1,988	110		
8	12 21	8612	−28	308	+20	33	145	15	VG	Do.
		8612	−24	312	+22	32	97	20		
		8613	−28	308	+15	32	24	5		
		8613	−23	313	+15	28	194	16		
		8620	−13	323	−16	20	12	7		
		8611	−12	324	+24	27	388	20		
		8611	−5	331	+21	22	412	22		
		8617	+18	354	+21	28	48	6		
		8617	+22	358	+21	30	12	3		
		8606	+65	41	−22	67	73	4		
		8621	+72	48	−18	73	12	1		
		(7)		(336)	(0)		1,417	119		
9	9 51	8612	−17	307	+22	28	145	10	F	Mt. Wilson.
		8612	−13	311	+24	27	73	14		
		8613	−12	312	+14	18	97	10		
		8613	−7	317	+14	15	121	1		
		8620	−1	323	−15	15	12	1		
		8611	+3	327	+25	25	242	19		
		8611	+7	331	+22	23	436	7		
		8619	+55	19	+22	58	24	5		
		(5)		(324)	(0)		1,150	67		
10	11 9	8625	−65	245	−23	67	12	2	G	U. S. Naval.
		8624	−64	246	−31	68	12	1		
		8623	−61	249	+16	63	6	1		
		8622	−40	270	+15	43	6	1		
		8613	−3	307	+16	16	6	1		
		8613	+2	312	+15	15	48	9		
		8613	+7	317	+15	17	97	1		
		8612	0	310	+23	23	242	27		
		8611	+14	321	+23	27	242	7		
		8611	+20	330	+21	29	364	9		
		8617	+43	353	+20	47	6	1		
		(8)		(310)	(0)		1,041	60		
11	10 56	8624	−51	246	−30	58	24	2	G	Do.
		8622	−26	271	+12	28	24	2		
		8617	+9	306	+21	22	48	3		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic Difference in longitude	Heliographic Longitude	Heliographic Latitude	Heliographic Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 11	10 56	8612	+13	310	+24	25	145	12	F	U. S. Naval.
		8612	+18	315	+23	27	24	2		
		8613	+16	313	+16	21	48	5		
		8613	+20	317	+15	24	109	1		
		8611	+27	324	+23	35	218	14		
		8611	+33	330	+22	39	436	22		
		8617	+55	352	+21	57	48	1		
		(6)		(297)	(+1)		1,124	64		
12	10 41	8626	−67	217	+9	69	48	4	G	Do.
		8622	−13	271	+12	17	24	3		
		8612	+22	306	+21	28	48	8		
		8612	+27	311	+24	34	97	16		
		8613	+33	317	+14	35	48	1		
		8611	+40	324	+25	45	97	6		
		8611	+47	331	+22	50	339	10		
		8617	+69	353	+21	70	6	1		
		(6)		(284)	(+1)		707	49		
13	13 24	8630	−68	202	−13	69	12	1	F	Do.
		8626	−51	219	+9	51	97	4		
		8626	−47	223	+9	47	61	1		
		8629	−8	262	−11	15	12	1		
		8628	+26	296	+21	32	24	2		
		8612	+40	310	+24	45	73	6		
		8613	+47	317	+14	49	73	2		
		8611	+54	324	+25	58	24	1		
		8611	+60	330	+21	61	485	4		
		(7)		(270)	(+1)		861	22		
14	10 25	8637	−88	170	−16	88	388	2	G	Do.
		8636	−80	178	+10	80	24	1		
		8635	−75	183	+22	76	73	2		
		8630	−55	203	−13	56	12	1		
		8626	−37	221	+8	38	73	9		
		8626	−33	225	+7	34	61	1		
		8634	−35	223	−16	38	12	2		
		8631	+11	269	−17	21	24	5		
		8628	+37	295	+21	41	6	1		
		8612	+45	303	+20	48	12	1		
		8613	+60	318	+14	60	24	4		
		8611	+74	332	+21	74	533	7		
		(11)		(258)	(+1)		1,242	36		
15	10 19	8639	−82	163	−21	82	48	1	F	Do.
		8637	−80	165	−15	80	242	3		
		8637	−70	175	−15	70	291	3		
		8637	−69	176	−16	69	109	4		
		8638	−78	167	+20	78	485	3		
		8636	−68	177	+8	68	24	1		
		8635	−61	184	+22	63	61	1		
		8630	−42	203	−14	44	12	1		
		8627	−37	208	−32	47	12	1		
		8634	−32	213	−15	36	24	2		
		8626	−25	220	+8	27	24	3		
		8626	−18	227	+7	19	61	2		
		8633	+7	252	−30	32	24	9		
		8632	+13	258	+4	14	73	4		
		8631	+27	272	−17	33	73	6		
		8612	+56	301	+12	57	12	1		
		(13)		(245)	(+1)		1,575	45		
16	10 18	8643	−73	159	+12	73	24	3	G	Do.
		8639	−68	164	−21	70	97	1		
		8637	−66	166	−15	68	291	5		
		8637	−59	173	−15	61	315	5		
		8637	−58	174	−16	60	194	3		
		8638	−64	168	+20	65	630	4		
		8636	−55	177	+9	56	24	1		
		8635	−48	184	+22	51	48	1		
		8630	−28	204	−13	32	6	1		
		8634	−19	213	−15	24	61	4		
		8626	−12	220	+9	14	36	4		
		8626	−3	229	+7	6	73	1		
		8642	−7	225	+20	20	12	2		
		8641	+1	233	+21	20	6	1		
		8640	+20	252	+26	32	12	2		
		8629	+38	270	−13	42	97	9		
		8631	+42	274	−19	45	73	4		
		(14)		(232)	(+1)		1,999	51		
17	10 52	8649	−82	136	+14	82	24	2	F	Do.
		8643	−59	159	+11	59	48	6		
		8639	−57	161	−21	60	170	3		
		8637	−51	167	−16	54	194	7		
		8637	−45	173	−17	47	291	8		
		8638	−50	168	+20	52	630	1		
		8636	−41	177	+8	41	12	1		
		8635	−35	183	+21	39	48	1		
		8630	−14	204	−14	20	24	2		
		8634	−5	213	−15	16	73	2		
		8626	+1	219	+8	7	24	9		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic Difference in longitude	Heliographic Longitude	Heliographic Latitude	Heliographic Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 17	10 25	8626	+9	227	+7	11	48	1	G	U. S. Naval.
		8646	+3	221	−22	23	48	5		
		8645	+16	234	−16	22	6	3		
		8644	+33	251	−29	43	12	3		
		8629	+51	269	−12	53	121	7		
		8631	+53	271	−17	55	121	10		
		(15)		(218)	(+1)		1,894	71		
18	10 40	8649	−68	137	+13	68	36	1	F	Mt. Wilson.
		8656	−54	151	−15	56	48	1		
		8643	−45	160	+12	47	194	16		
		8638	−39	166	+20	42	533	1		
		8639	−38	167	−20	43	194	4		
		8637	−37	168	−15	40	145	6		
		8637	−30	175	−17	35	194	7		
		8655	−33	172	+32	37	24	3		
		8635	−22	183	+22	29	61	1		
		8653	−18	187	−11	22	12	1		
		8630	0	205	−12	13	48	4		
		8634	+9	214	−14	19	48	5		
		8626	+15	220	+10	17	73	6		
		8651	+27	232	+7	28	145	13		
		8629	+66	271	−12	67	339	11		
		8631	+69	274	−17	71	145	10		
		(15)		(205)	(+1)		2,239	90		
19	10 24	8649	−55	137	+13	57	24	2	VG	U. S. Naval.
		8656	−40	152	−16	43	48	5		
		8656	−35	157	−17	38	12	2		
		8643	−30	162	+11	32	170	18		
		8639	−29	163	−21	36	145	11		
		8638	−25	167	+20	31	533	1		
		8638	−24	168	+22	31	6	2		
		8637	−23	169	−14	26	242	30		
		8637	−17	175	−14	22	170	14		
		8636	−15	177	+9	17	12	5		
		8654	−11	181	−19	22	24	8		
		8635	−9	183	+21	22	48	1		
		8653	−2	190	−12	13	24	14		
		8634	+22	214	−14	25	48	7		
		8626	+28	220	+9	29	73	9		
		8646	+30	222	−22	37	170	12		
		8651	+38	230	+8	38	339	25		
		8650	+44	236	−9	45	97	6		
		8657	+60	252	+25	62	12	1		
		8629	+75	267	−13	75	97	7		
		8629	+82	274	−15	82	291	1		
		8631	+77	269	−17	78	145	7		
		(18)		(192)	(+1)		2,730	188		
20	10 18	8649	−42	137	+13	43	12	1	G	Do.
		8656	−25	154	−16	30	24	10		
		(*)	−17	162	+23	27	24	10		
		8643	−17	162	+12	20	61	15		
		8643	−13	166	+11	17	145	12		
		8639	−15	164	−21	27	97	10		
		8637	−10	169	−14	18	194	13		
		8637	−3	176	−15	16	145	5		
		8636	−1	178	+9	8	6	2		
		8654	+2	181	−19	21	12	1		
		8635	+4	183	+22	20	16	1		
		8653	+10	189	−11	17	97	11		
		8652	+20	199	+6	21	12	2		
		8630	+27	206	−12	31	24	4		
		8634	+35	214	−15	38	16	1		
		8626	+40	219	+9	41	218	10		
		8646	+42	221	−22	47	242	15		
		8651	+51	230	+7	51	194	15		
		8651	+60	239	+7	60	97	5		
		8650	+59	238	−9	60	145	5		
		8657	+72	251	+26	74	6	1		
		(18)		(179)	(+2)		1,787	149		
21	10 45	8649	−28	137	+14	32	6	1	G	Do.
		8656	−13	152	−16	22	48	8		
		8643	−3	162	+11	10	24	7		
		8643	0	165	+11	9	291	18		
		8639	−2	163	−21	23	97	15		
		8638	+1	166	+20	18	388	4		
		8637	+3	168	−17	19	145	18		
		8637	+12	177	−16	20	121	4		
		(*)	+12	177	+19	20	6	1		
		8654	+16	181	−20	25	12	3		
		8635	+17	182	+21	25	12	1		
		8653	+23	188	−11	26	73	2		
		8647	+42	207	+12	43	6	1		
		8634	+45	210	−12	45	97	5		
		8626	+54	219	+9	54	291	8		
		8646	+57	222	−22	60	218	11		
		8651	+63	228	+7	63	291	10		
		8651	+73	238	+7	73	97	4		
		8650	+72	237	−9	73	194	2		
		(16)		(165)	(+2)		2,417	123		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic Difference in longitude	Heliographic Longitude	Heliographic Latitude	Heliographic Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 22	10 43	8659	−8	144	−23	25	36	4	G	U. S. Naval.
		8656	+2	154	−17	19	48	6		
		8643	+10	162	+11	14	121	7		
		8643	+16	168	+11	20	267	13		
		8638	+14	166	+20	23	339	3		
		8639	+17	169	−19	25	218	18		
		8660	+20	172	−11	24	73	3		
		8637	+23	175	−15	27	48	5		
		8635	+31	183	+21	36	48	6		
		8653	+37	189	−11	39	109	2		
		8647	+57	209	+13	59	73	2		
		8634	+58	210	−13	60	61	3		
		8626	+65	217	+10	65	194	1		
		8626	+73	225	+10	73	145	1		
		8646	+70	222	−21	72	339	5		
		8651	+80	232	+9	80	48	1		
		8650	+85	237	−9	85	145	1		
		(15)		(152)	(+2)		2,312	81		
23	10 20	8663	−63	76	+10	63	24	1	F	Do.
		8662	−12	127	+25	26	36	3		
		8661	−10	129	+14	15	24	1		
		8661	−5	134	+13	12	97	9		
		8659	+6	145	−24	26	24	1		
		8656	+15	154	−17	24	48	6		
		8643	+27	166	+11	29	194	20		
		8643	+31	170	+11	33	436	1		
		8638	+28	167	+20	32	315	1		
		8639	+30	169	−17	35	194	11		
		8637	+32	171	−16	35	145	10		
		8637	+40	179	−16	43	73	3		
		8660	+36	175	−11	38	73	8		
		8635	+44	183	+22	47	97	4		
		8653	+52	191	−11	53	48	1		
		8647	+69	208	+13	70	97	1		
		8634	+70	209	−13	71	12	1		
		8626	+78	217	+10	78	145	2		
		8646	+83	222	−21	83	242	3		
		(16)		(139)	(+2)		2,324	87		
24	10 23	8666	−80	46	−23	80	24	1	F	Do.
		8663	−50	76	+9	51	73	2		
		8663	−45	81	+7	46	24	2		
		8665	−15	111	−20	27	12	2		
		8662	+1	127	+25	24	242	10		
		8661	+7	133	+13	13	97	9		
		8664	+23	149	−25	35	24	4		
		8656	+32	158	−18	37	24	7		
		8643	+38	164	+9	39	170	13		
		8643	+45	171	+11	47	582	3		
		8638	+39	165	+20	42	388	2		
		8639	+41	167	−19	46	97	5		
		8637	+49	175	−17	52	145	7		
		8660	+49	175	−11	51	24	4		
		8635	+58	184	+23	60	48	5		
		8653	+66	192	−11	67	48	1		
		(14)		(126)	(+2)		2,022	77		
25	10 43	8668	−86	26	+14	86	242	1	G	Do.
		8666	−64	48	−22	66	48	5		
		8667	−40	72	−30	48	61	8		
		8663	−38	74	+9	39	24	1		
		8665	−5	107	−20	22	48	7		
		8662	+14	126	+25	26	339	18		
		8661	+21	133	+12	23	48	9		
		8638	+52	163	+20	54	291	1		
		8643	+52	163	+9	53	145	10		
		8643	+59	171	+11	60	727	5		
		8639	+58	170	−18	61	12	3		
		8637	+65	177	−16	68	48	8		
		8660	+65	177	−12	67	12	1		
		8635	+70	182	+22	71	48	2		
		8653	+79	191	−11	80	24	1		
		(14)		(121)	(+2)		2,117	80		
26	11 41	8668	−78	20	+14	78	242	4	G	Do.
		8668	−72	26	+13	72	291	1		
		8666	−50	48	−21	53	48	6		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic Difference in longitude	Heliographic Longitude	Heliographic Latitude	Heliographic Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1947	h m		°	°	°	°				
June 26	11 41	8669	−33	65	−10	34	24	8		U. S. Naval.
		8667	−27	71	−30	41	121	9		
		8663	−24	74	+9	26	24	1		
		8665	+11	109	−20	25	24	4		
		8662	+27	125	+25	34	291	11		
		8661	+35	133	+14	37	24	3		
		8638	+66	164	+20	67	242	6		
		8643	+67	165	+9	67	145	4		
		8643	+73	171	+11	73	727	3		
		(10)		(98)	(+2)		2,203	60		
27	10 20	8671	−80	6	+16	80	242	4	VG	Do.
		8668	−65	21	+15	66	388	18		
		8668	−57	29	+14	59	388	4		
		8666	−46	40	−25	51	36	12		
		8666	−37	49	−22	44	24	4		
		8670	−36	50	+12	37	48	4		
		8672	−34	52	−14	36	6	2		
		(*)	−29	57	−23	37	12	1		
		8669	−23	63	−9	26	24	7		
		8667	−13	73	−29	32	121	15		
		8663	−10	76	+9	12	12	1		
		(*)	+23	109	+2	23	12	3		
		8665	+24	110	−19	32	12	4		
		8662	+42	128	+26	47	315	12		
		8638	+80	166	+20	80	242	1		
		8643	+85	171	+10	85	485	5		
		(14)		(86)	(+2)		2,367	97		
28	8 53	8674	−78	355	+21	78	24	1	G	Mt. Wilson.
		8676	−78	355	−25	80	12	1		
		8675	−75	358	−28	18	24	1		
		8671	−67	6	+19	69	48	3		
		8668	−51	22	+15	52	339	30		
		8668	−43	30	+14	44	436	1		
		8666	−31	42	−23	40	24	5		
		8666	−27	46	−21	36	24	10		
		8670	−22	51	+12	23	48	4		
		8669	−8	65	−8	14	73	15		
		8667	−3	70	−29	32	36	12		
		(*)	−1	72	−22	25	24	14		
		8673	+8	81	+30	28	12	2		
		8665	+36	109	−19	42	12	3		
		8662	+50	123	+27	53	194	6		
		8662	+57	130	+25	60	218	13		
		(13)		(73)	(+3)		1,548	123		
29	10 36	8677	−86	333	+20	86	48	1	VG	U. S. Naval.
		8676	−67	352	−18	69	12	1		
		8675	−64	355	−28	69	242	6		
		8675	−60	359	−30	66	291	1		
		8674	−60	359	+19	61	24	1		
		8671	−53	6	+17	55	48	7		
		8668	−37	22	+15	38	194	21		
		8668	−30	29	+14	32	436	1		
		8666	−12	47	−22	27	12	9		
		8670	−7	52	+12	11	61	4		
		8672	−1	58	−18	21	24	16		
		8669	+4	63	−9	12	12	4		
		8669	+7	66	−8	13	6	1		
		8667	+10	69	−29	33	12	3		
		8673	+22	82	+30	35	24	7		
		8665	+47	106	−19	52	6	2		
		8662	+66	125	+26	68	291	12		
		(14)		(59)	(+3)		1,743	97		
30	11 8	8677	−72	334	+20	72	97	1	G	Do.
		8675	−50	356	−28	57	194	5		
		8675	−47	359	−30	56	242	2		
		8674	−47	359	+19	48	12	1		
		8671	−38	8	+17	40	24	10		
		8668	−24	22	+15	26	145	7		
		8668	−16	30	+14	19	388	1		
		8679	−2	44	−17	20	24	7		
		8666	−1	45	−21	23	24	9		
		8678	+2	48	−3	6	12	5		
		8670	+6	52	+12	10	24	3		
		8672	+13	59	−18	25	12	6		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JUNE 1947—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory
			Difference in longitude	Longitude	Latitude	Distance from center of disk				
1947	h m		°	°	°	°				
June 30	11 8	8669	+19	65	−7	21	24	4	G	U. S. Naval.
		8673	+36	82	+30	43	97	3		
		8662	+78	124	+27	78	291	5		
		(13)		(46)	(+3)		1,610	69		

Mean daily area for 30 days = 1,759
Mean 10g + s for 30 days = 202.9

(*) Not numbered.
VG = very good; G = good: F = fair; P = poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR JUNE 1947

Dependent on observations at Zurich observatory and its stations at Locarno and Arosa.

June 1947	Relative numbers	June 1947	Relative numbers	June 1947	Relative numbers
1	225	11	104	21	246
2	206	12	93	22	232
3	179	13	90	23	232
4	143	14	99	24	195
5	143	15	134	25	204
6	150	16	164	26	151
7	158	17	197	27	150
8	132	18	228	28	148
9	114	19	274	29	163
10	120	20	251	30	143

Mean, 30 days = 168.9

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, June 1947

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, June 1947

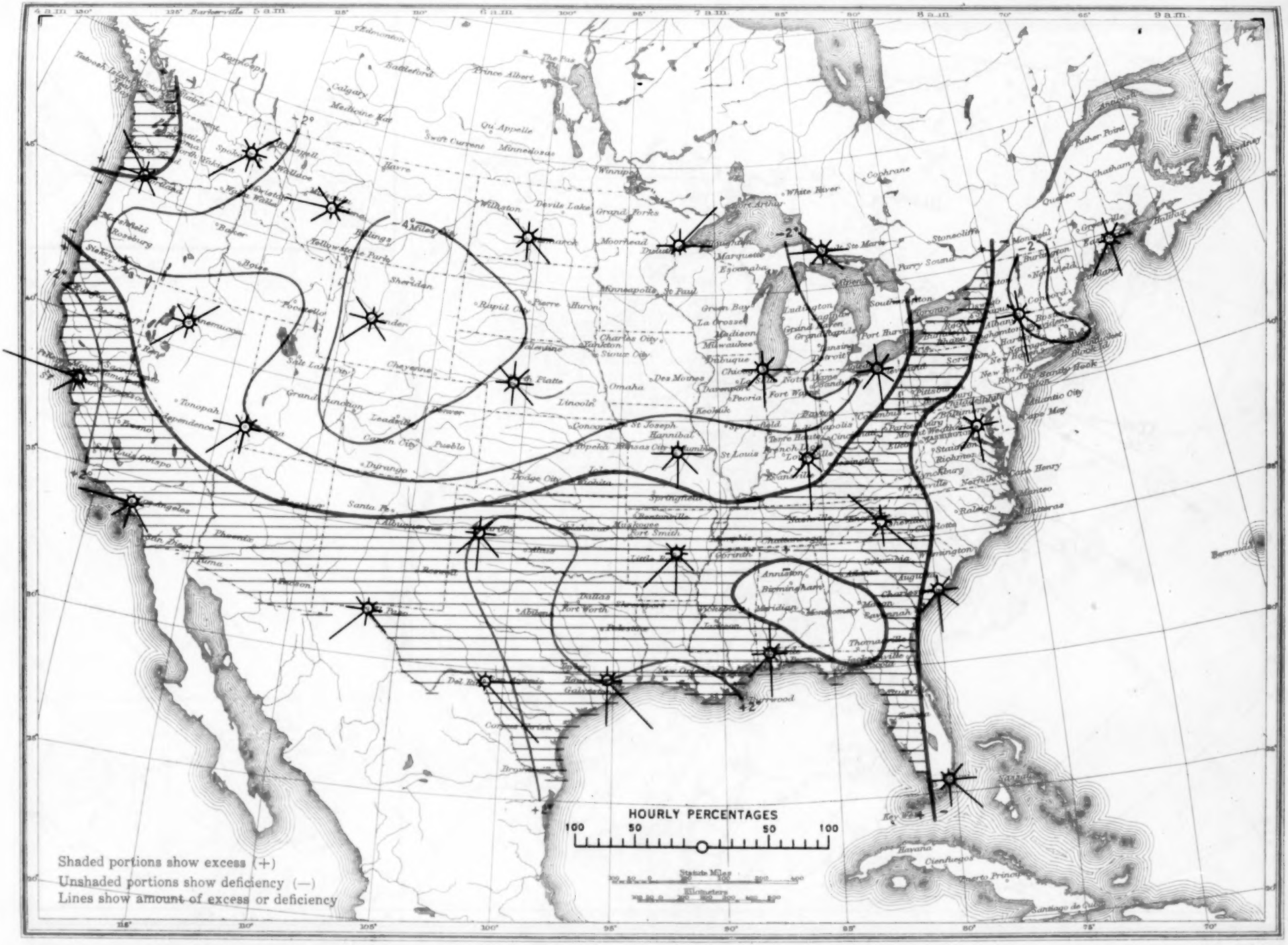
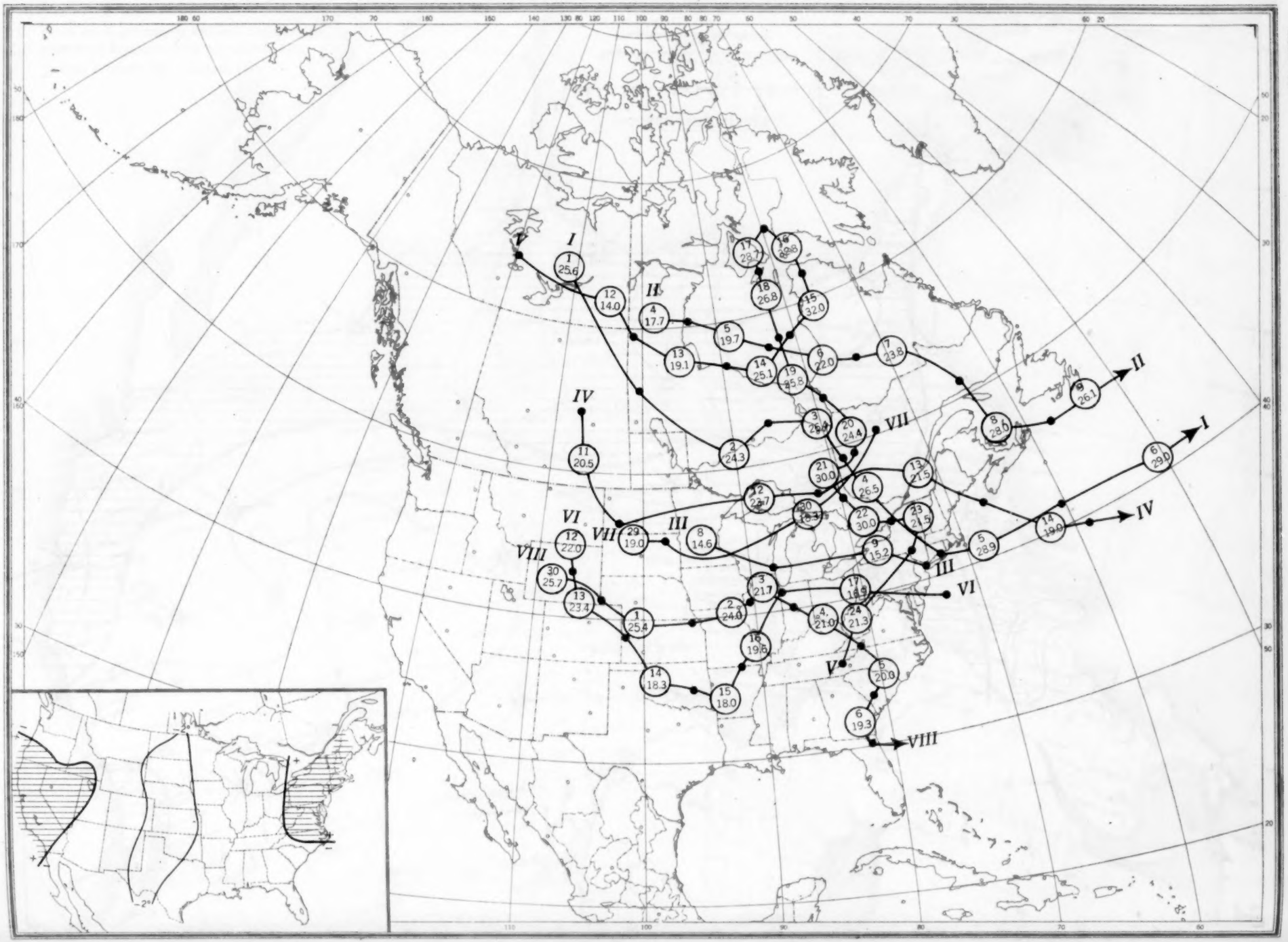


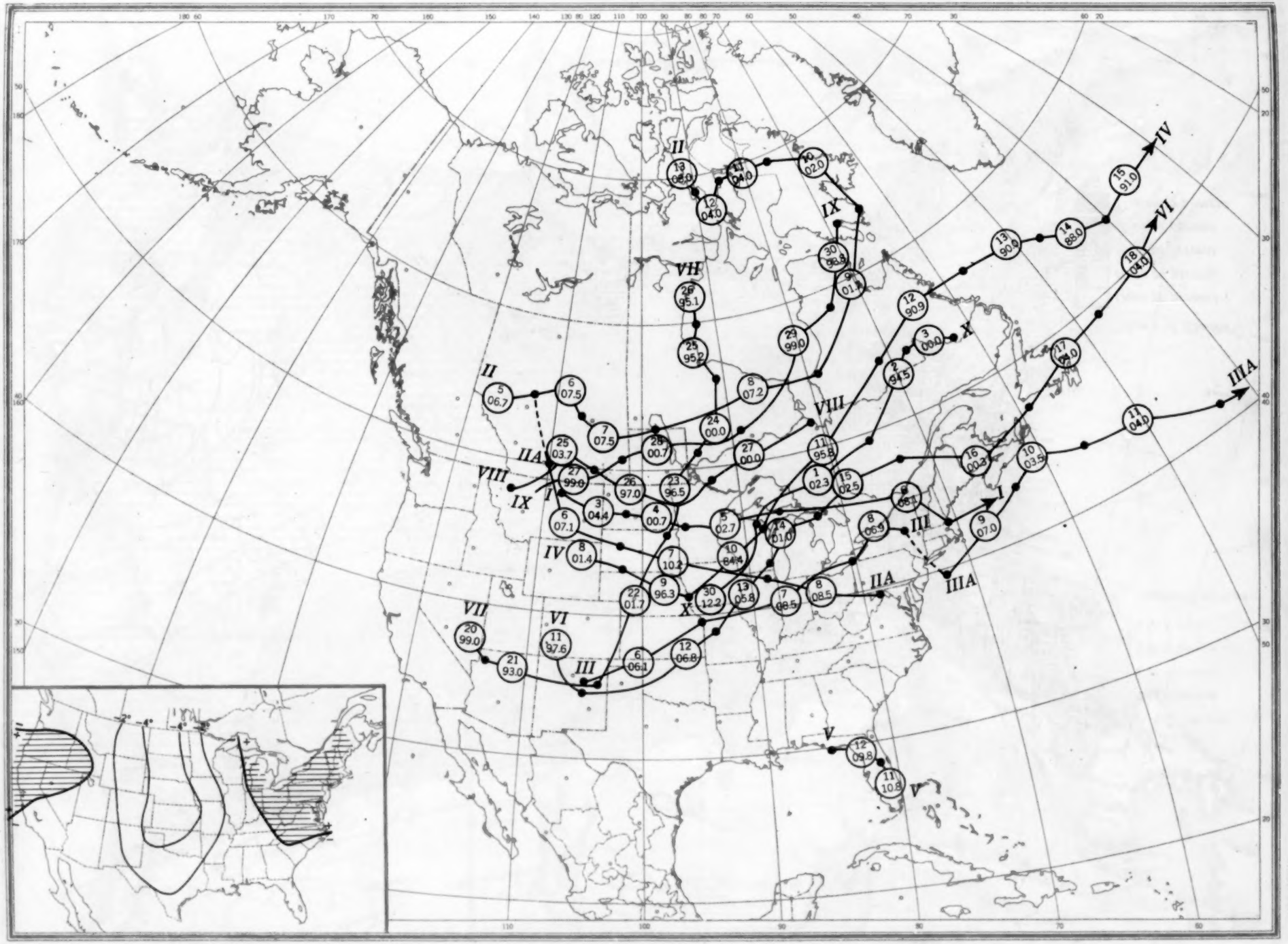
Chart II. Tracks of Centers of Anticyclones, June 1947. (Inset) June Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, June 1947. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, June 1947

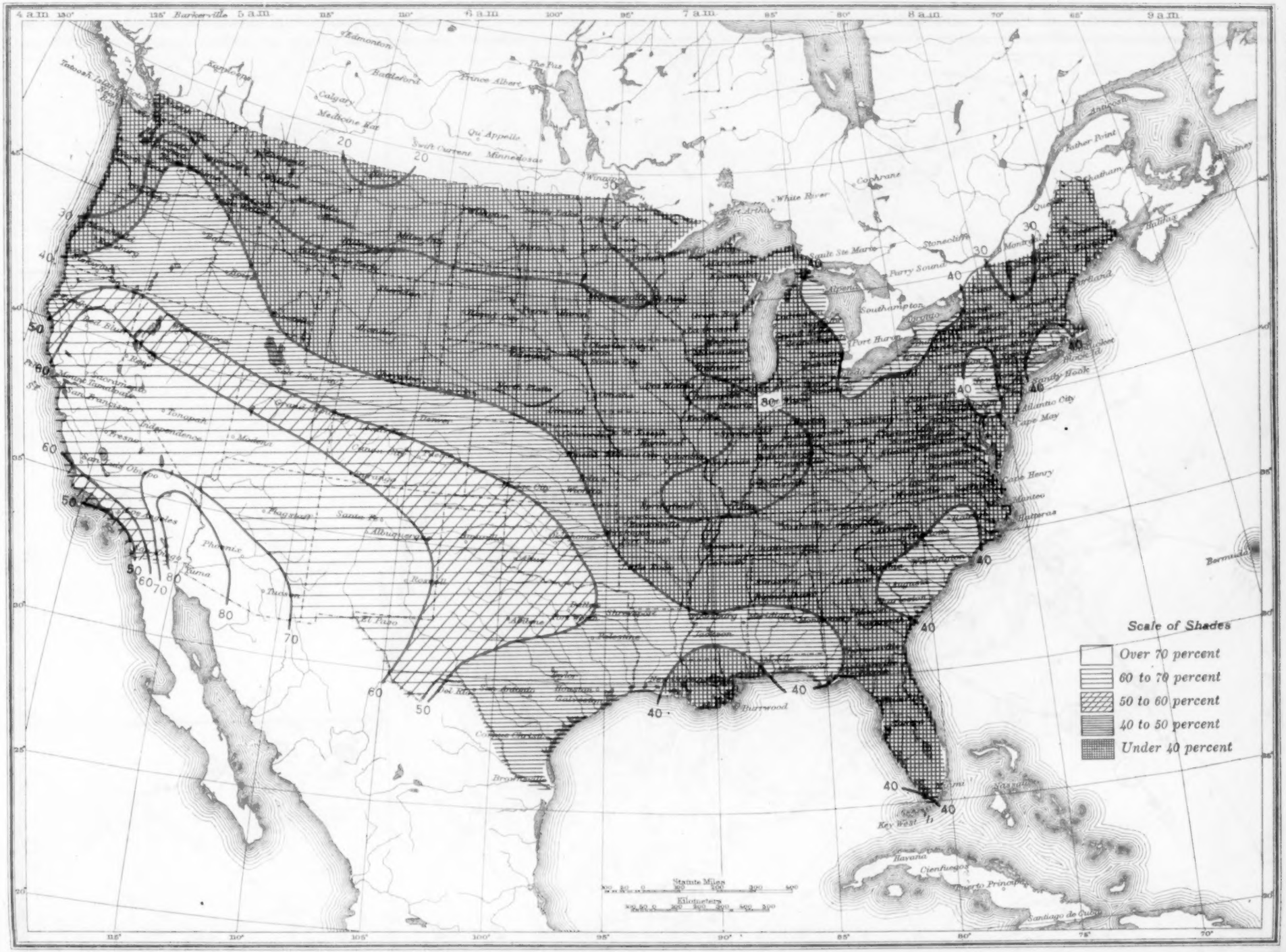


Chart V. Total Precipitation, Inches, June 1947. (Inset) Departure of Precipitation from Normal

Chart V. Total Precipitation, Inches, June 1947. (Inset) Departure of Precipitation from Normal

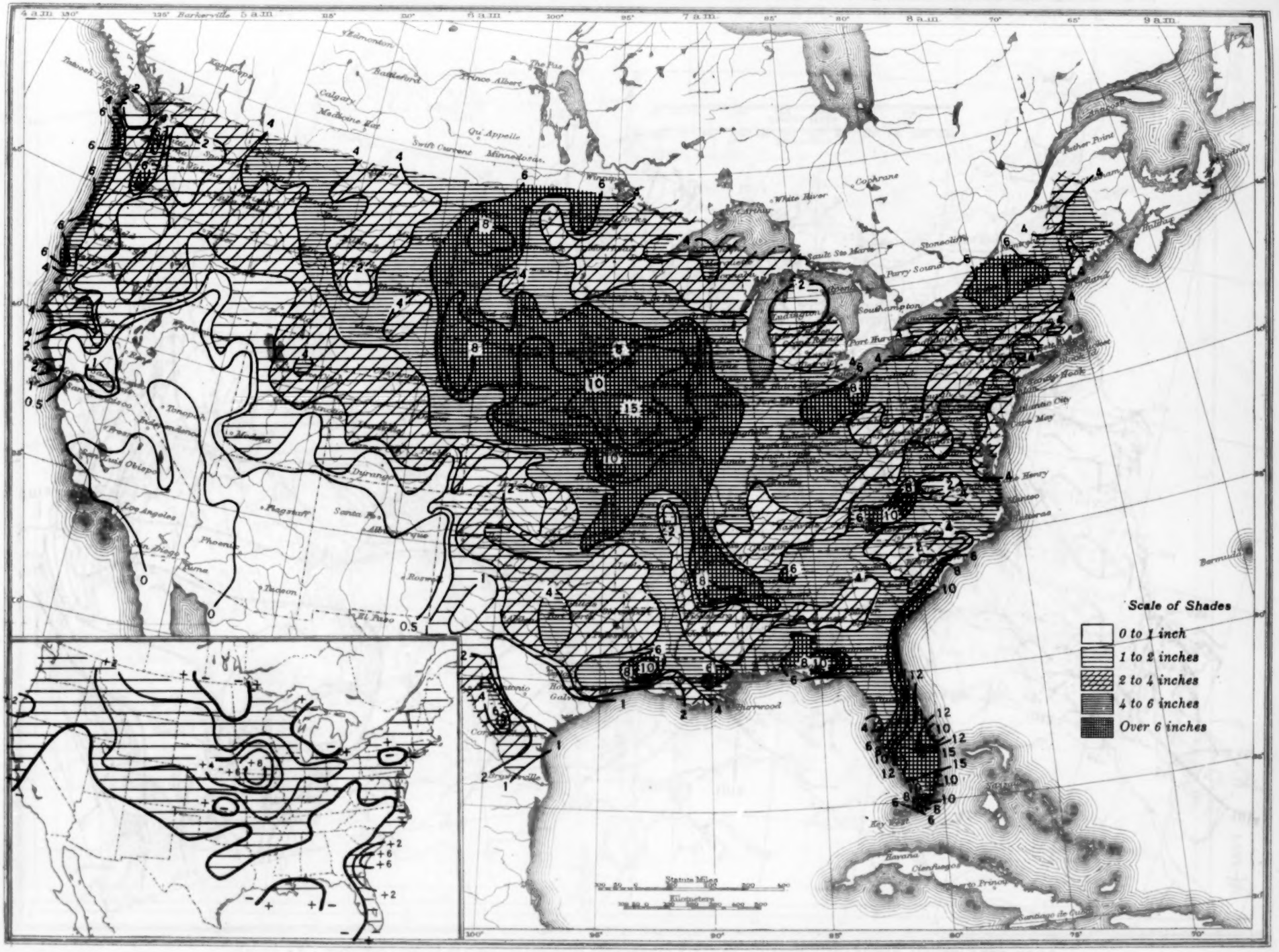


Chart VI. Isobars (mb.), at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, June 1947

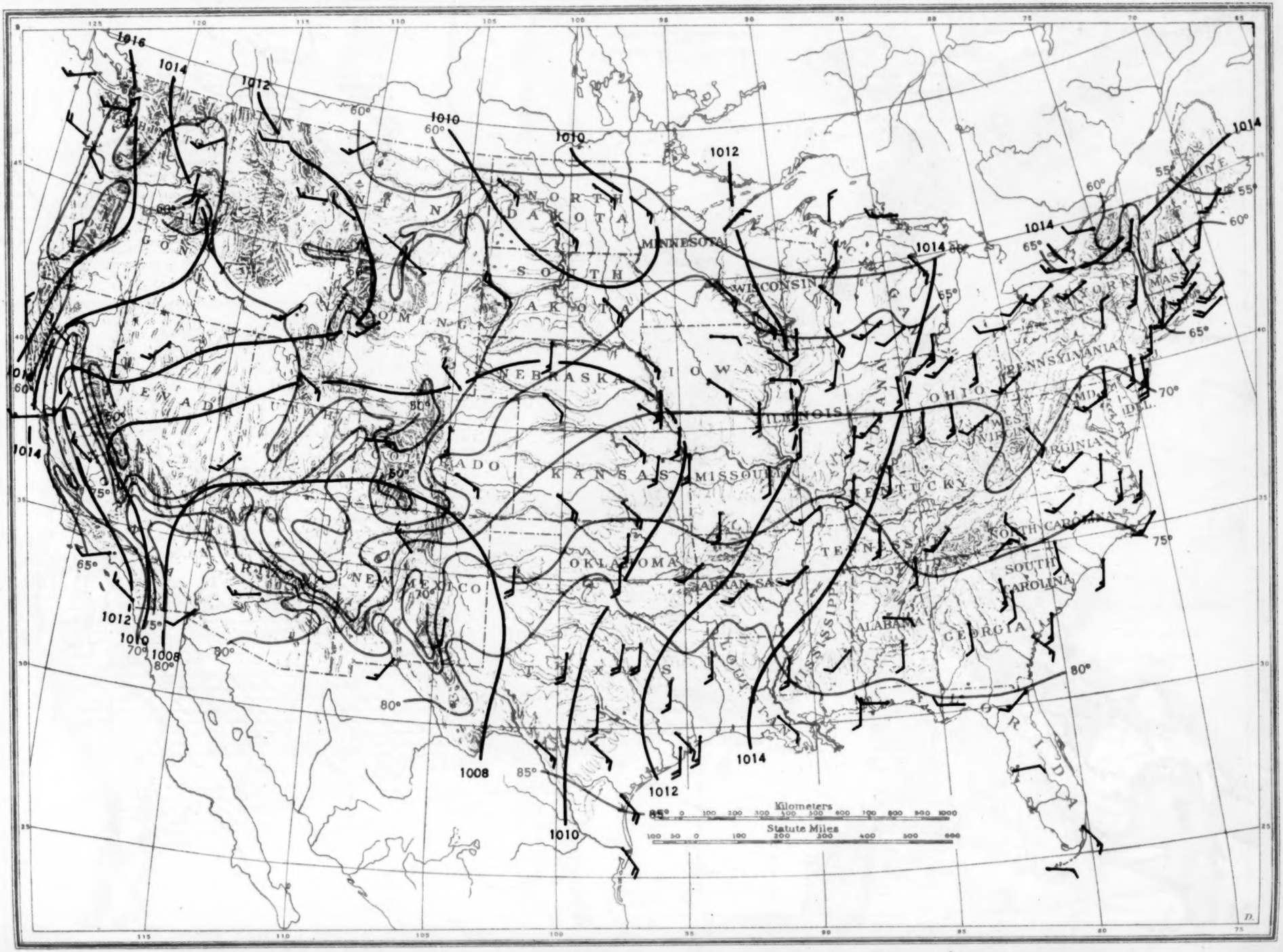
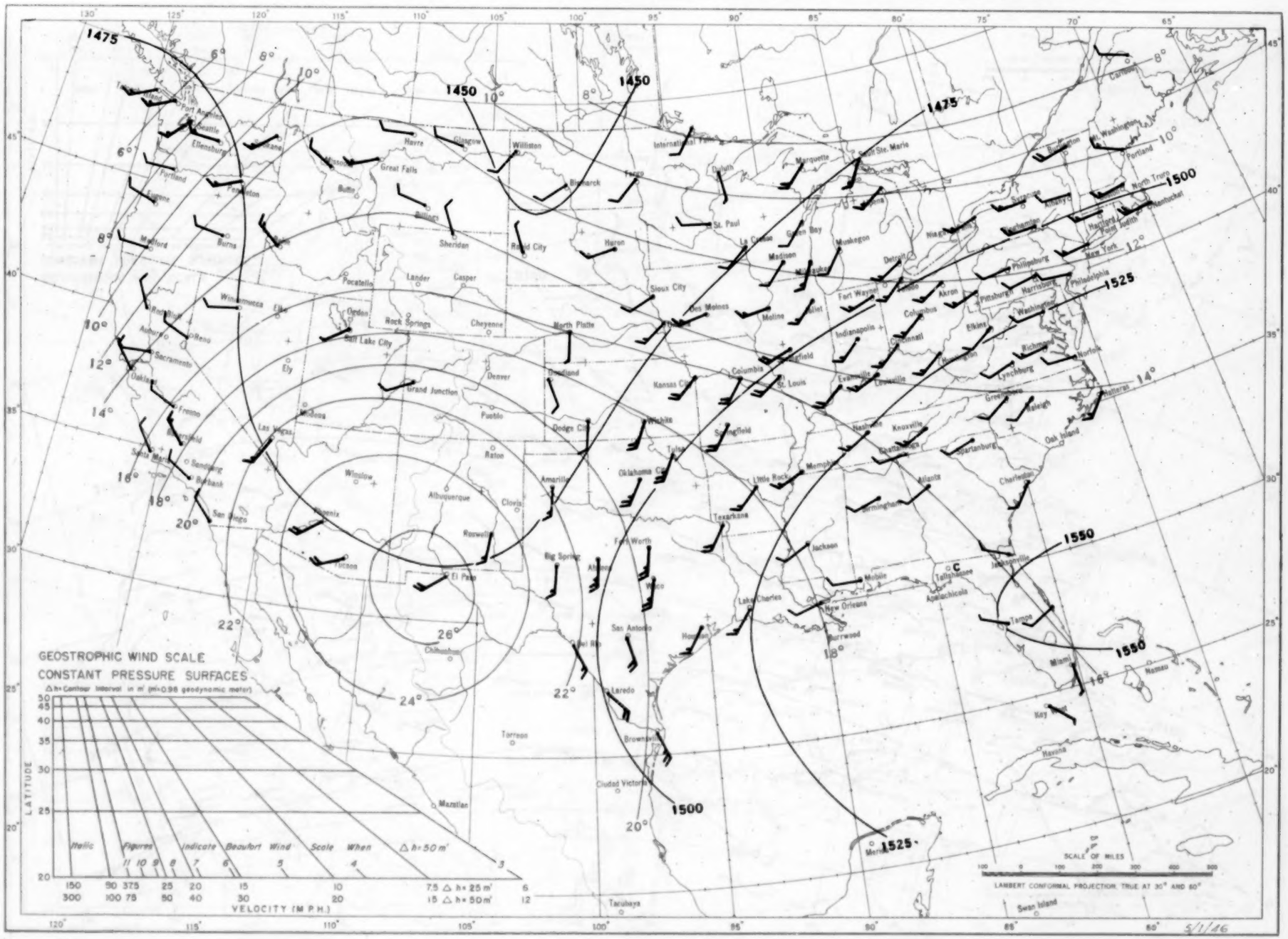


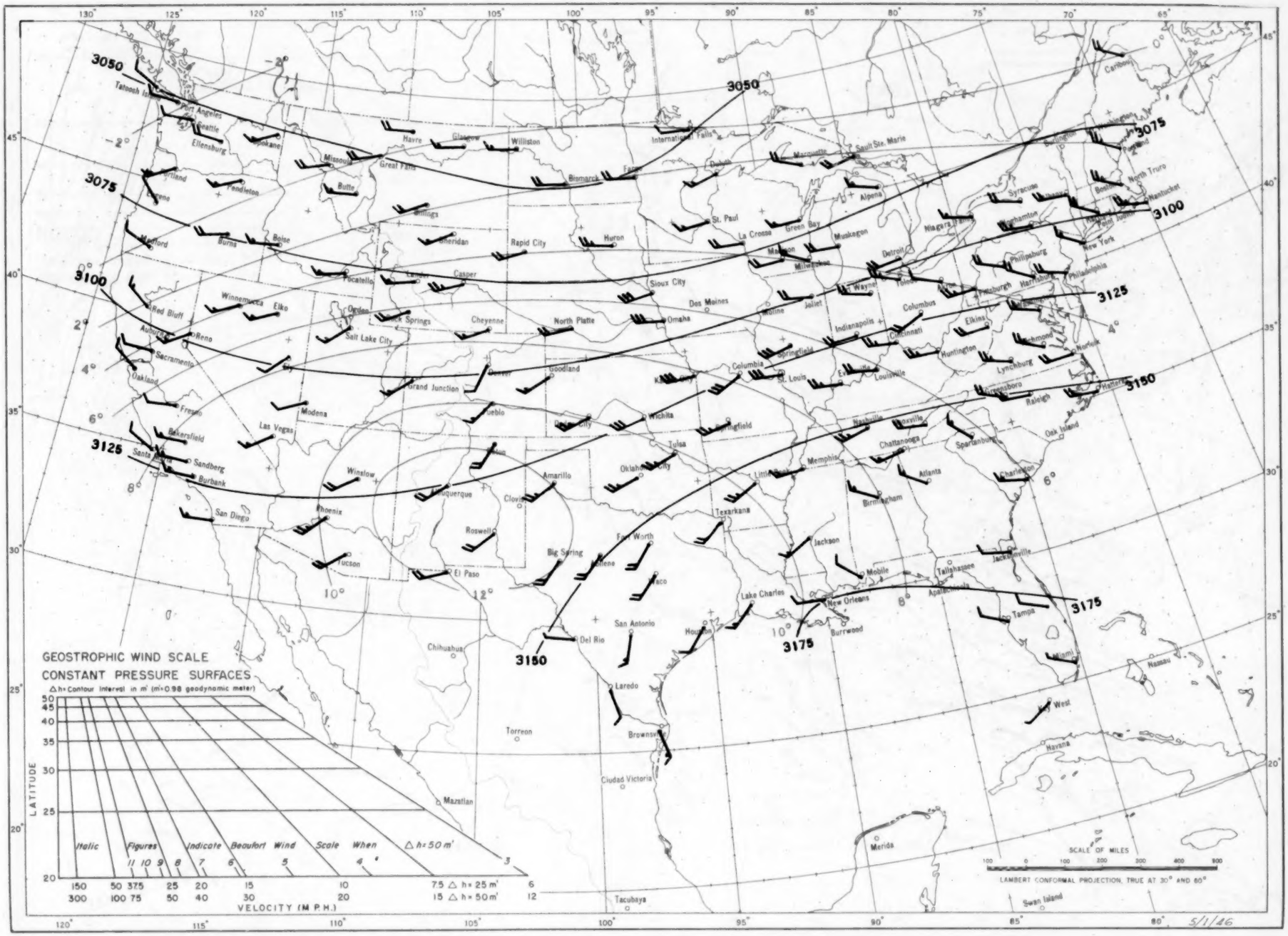
Chart VIII, June 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in

Chart VIII, June 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m.s.l.)



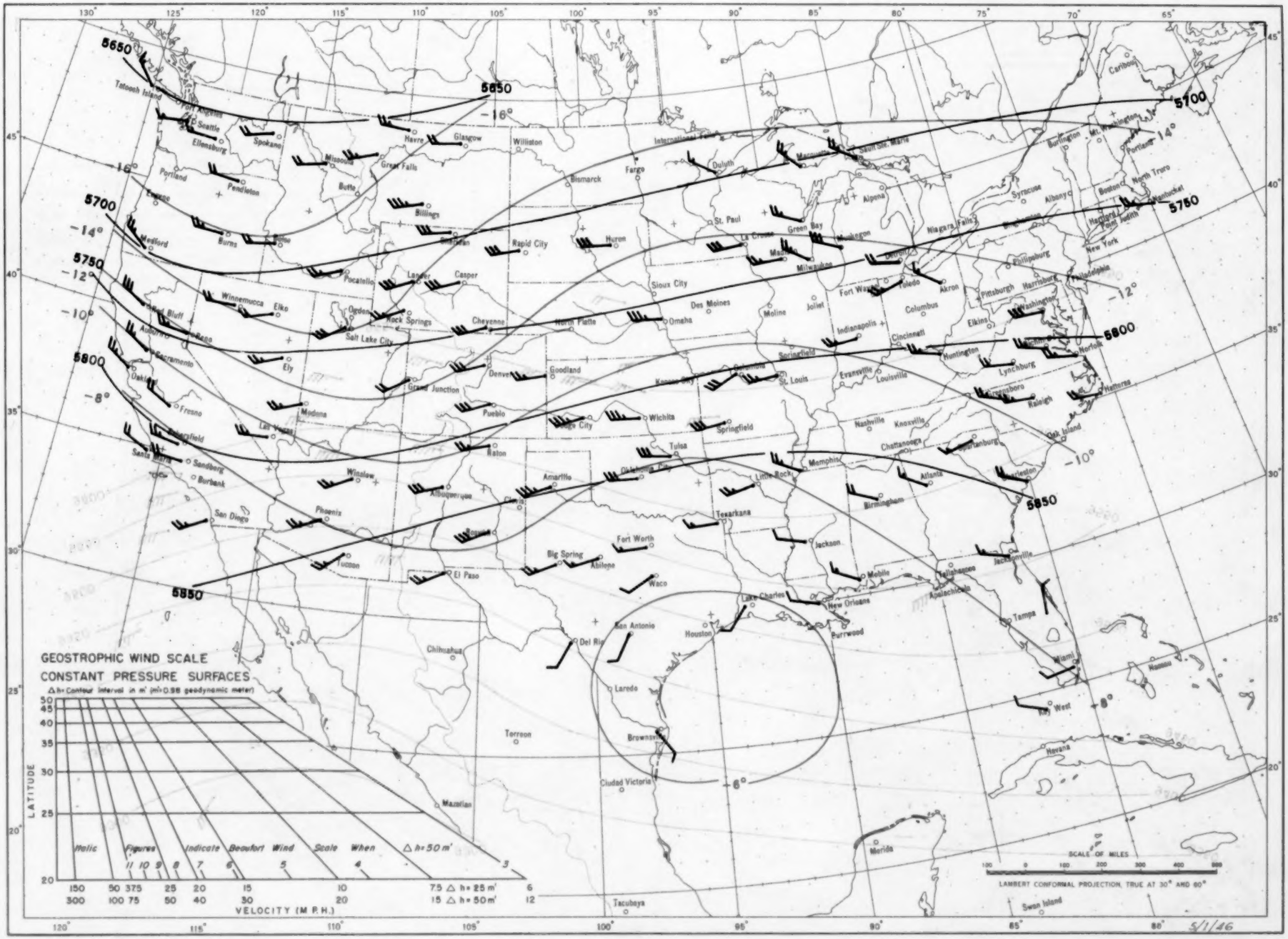
Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart IX, June 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m.s.l.)



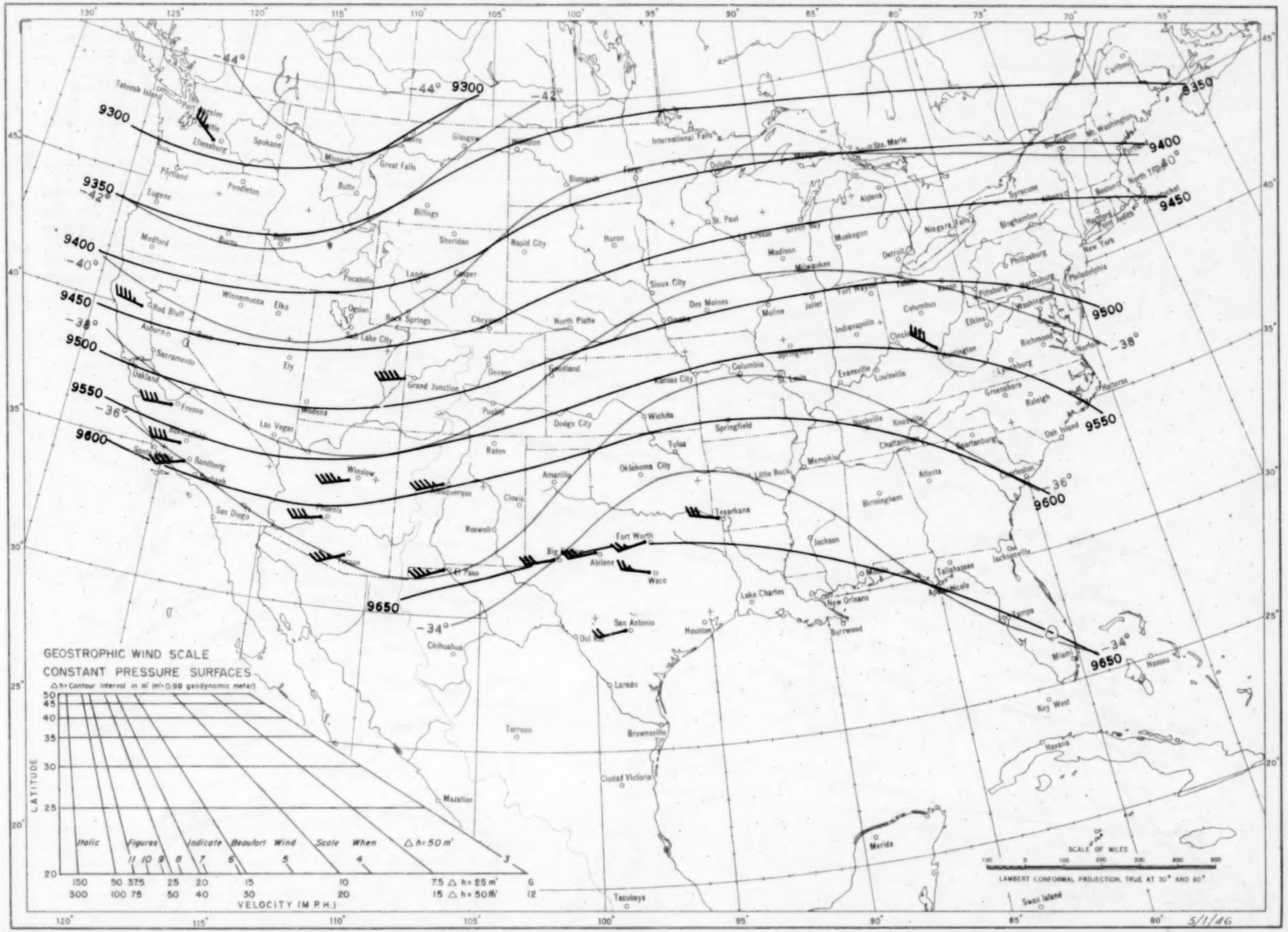
Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart X, June 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart XI, June 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.